(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
24 March 2005 (24.03.2005)

PCT

(10) International Publication Number
WO 2005/025288 A2

(51) International Patent Classification: Not classified

(21) International Application Number:
PCT/EA2004/000003

(22) International Filing Date:
13 September 2004 (13.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

10/663,260	16 September 2003 (16.09.2003)	US
10/680,369	7 October 2003 (07.10.2003)	US
10/793,508	4 March 2004 (04.03.2004)	US

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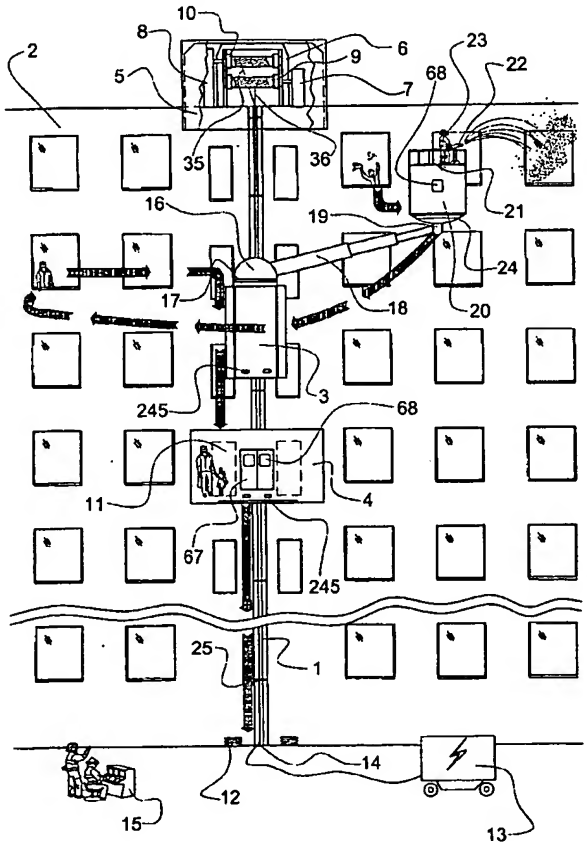
(54) Title: HIGH-RISE FIRE FIGHTING, RESCUE AND CONSTRUCTION EQUIPEMENT



(57) Abstract: An elevator system for traveling on a rail (1) attached to the outside of a high-rise building (2). The rail has an H shape and has trolleys (37, 38) connected to cables riding in a channel on the rail for raising and lowering elevators. Motors (7) rotate spools (9, 10) having cables (35,36) connected to the trolleys. One elevator having a telescoping arm (18) attached for reaching any position on or above the building. A platform or cabin (20) attached to the telescoping arm can deliver materials to the building while under construction and thereafter be used for building maintenance such as window washing. The telescoping arm may have various attachments for different functions such as for rescuing people trapped in a high-rise during a fire or for positioning fire fighters and hoses or fire fighting equipment next to a fire.

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(81) **Designated States** *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States** *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations*

Published:

— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

HIGH-RISE FIRE FIGHTING, RESCUE AND CONSTRUCTION EQUIPMENT

Field of the Invention

This invention relates generally to an elevator system and elevating facilities running on a rail attached to the outside of a building. The rail can support two cables for lifting or lowering two elevators. The elevator system may have two cars, a combination elevator and crane and an elevator. This invention also relates to a combination elevator and crane running on a rail attached to the outside of a building for use on high-rise structures.

The elevator system may have two cars, a combination elevator and crane and an elevator. Different rail systems and rail engaging systems can be used. The elevator portion can be powered and drive themselves up and down the rails or cables can be used to lift and lower the elevators. A rail section can be installed on the building with the elevator on the rail section and connected to the other rail sections or the elevator can be installed on the rail by pivoting arms. Elevator portion can be permanently attached to the building rail or transported to the building. The crane portion can also have a fire-fighting equipment – to access all parts of a building. This invention also relates to two elevators on such rails with a corridor attached between them to act as a moveable platform for fire fighting, emergency rescue, building construction and building maintenance.

The invention can be used for fire fighting and rescue and can also be used for construction and maintenance of high-rise structures.

Description of the Related Art

Currently vertical transportation in high-rise structures is limited to stairs and elevators. Fire fighters on the outside of the building are limited by how high their ladders will reach when fighting fires or attempting rescues. Construction and building maintenance is limited as to access to the outside walls and roof of the building. For example window washing is limited a plank precariously dangling from ropes extending from the top of a building. Construction of the building is similarly hampered by the need for scaffolding and lack of easy transportation and access to all areas on the outside of the high-rise building. Some buildings have elevators on the outside of the building, which offers a nice view as the elevator ascends and descends the side of the building. These are standard elevators and are not to be used during fires. The elevators have

cables and are enclosed within the structure of the building to protect the elevator parts. There is usually a glass enclosure for the elevator so that people in the elevator can look out through the side of the building. These elevators are not available for removing large numbers of people from a building during a fire and are not useful for fighting fires or performing maintenance or construction work on the building.

There are window-washing platforms that use ropes on either side of the platform to support the platform as it travels up and down the side of the building. The ropes are spooled on a barrel, which is turned by an electric motor, which can be operated by someone on the platform. There are no devices for spanning the entire face of a building, which can be raised and lowered to reach any point on the face of the building and can be used to fire fighting, emergency rescue, building maintenance or window washing.

Summary of the Invention

The invention utilizes an elevator having a crane portion. The elevator portion is for traveling vertically up and down the outside of a building. The crane portion extends form the elevator portion to a desired location on the building. The crane portion can support a passenger cabin for fire rescue. The cabin can also have fire-fighting equipment for access to all portions of a building. The crane can also haul building materials to any location on a building under construction and can be used for window washing or other maintenance activities on the outside of the building.

The crane portion has a telescoping arm for adjusting the distance between the cabin and the elevator. The telescoping arm has pivots on both ends. One pivot is attached to the cabin for keeping the floor of the cabin horizontal. The second pivot is to angularly position the telescoping arm relative the elevator portion. A rotating portion on the elevator portion swings the telescoping arm toward or away from the building.

An elevator portion has a telescoping pole for adjusting the distance between to a cabin on the other end of the telescoping pole. The pivot attached the to elevator portion is to angularly position the cabin relative the elevator portion.

A rail attached to the side of the building is engaged by wheels, which are clamped to the rail and hold the elevator portion in place and propel the elevator portion vertically on the rail. The claiming feature allows the elevator portion to engage or disengage the building. The elevator portion may thus be moved to different portions of the building or transported to different buildings when needed.

A transport vehicle having a telescoping arm, a rotating mechanism and a pivoting mechanism can position the elevator portion adjacent a rail for engagement thereto.

A cabin or platform attached to the telescoping pole on the elevator portion can perform many tasks. It can deliver goods or workers to places on the building during construction. It can also be used for fire fighting and rescuing people from buildings.

The invention also utilizes a second elevator. Both elevators run vertically on an H shaped rail attached to the side of a building. The rail has a channel for running two separate cables connected to two separate trolleys riding in the channel for lifting and lowering the elevators on the rail. The rail is engaged by wheels on the elevators to stabilize the elevator. The wheels can be mounted on arms that pivot and temporarily clamp the elevator to the rail permitting the elevator to engage the rail or the elevator wheels can permanently engage the rail. The pivoting arms can be opened to remove the elevator from the rail so that the elevator can be transported to a different rail on the same building or to a rail on another building.

Alternatively the elevator can be permanently fixed to the H rail and run along it with gear wheels engaging apertures in the rail. The elevator is attached to the building on a section of rail added to the existing rail on the building to extend the rail and attach the elevator to the building.

The telescopic arm consists of two parts, which are interconnected with the help of a pivoting mechanism. The telescopic arm has a pivot at its end, attached to a cramp, with the help of a vertical rotating mechanism. The cramp, also, is pivoted, with the help of vertical rotating mechanisms, to an outside platform supplied with a barrier; a cabin is hanged onto the platform.

The cabin itself can rotate 360 around its vertical axis – with the help of a rotating mechanism. The elevator portion has a passenger compartment with sliding doors – for connection with the cabin, and a vertical aperture with a staircase, consisting of two parts – for connection with a rescue elevator.

For safety reasons, elastic profile is used for elevator portion contact surface and for upper surface of an autonomous rescue elevator. Supporting elements of an elastic profile are provided below contacting surfaces of the elevator portion and on the autonomous rescue elevator. For constant fuelling and liquids supply, the cabin, the elevator portion and the autonomous rescue elevator are provided with compartments for keeping anti-fire foam and other liquids and hoses.

For more operative control, a passenger compartment of the elevator portion is provided with an additional control panel. For a better contact between elastic tires and working surfaces of an H-shaped rail, the working surfaces have guiding slots.

A pair of elevators riding on rails on the face of a building has a platform extending

between them for accessing any point on the face of a building as the elevators are raised and lowered in unison. The platform can support a corridor such that people can enter the corridor and either walk there through to an adjacent corridor or be transported up or down in the corridor or a connecting outside elevator for emergency rescue operations. Pairs of elevators on each face of the building can be raised and lowered in cooperation with each other or individually to effect rescues. Other elevators or elevators with cranes thereon can also be used in conjunction with the pairs of elevators with a platform and corridor thereon for rescue, fire-fighting or building construction or maintenance.

The invention utilizes a functional compartment of a building – wherein a sliding frame is installed connected with jack mechanisms; with the help of these jack mechanisms, the sliding frame can slide beyond the outer limits of the building and back. Smooth and safe sliding of the frame is ensured by its supporting wheels which slide in guiding rails mounted in the surfaces of the functional compartment.

The sliding frame is equipped, in its front part, with a receiving panel with the left and right "pocket" guiders mounted on it.

To ensure possible connection with the receiving panel, the attachable section of the H-shaped rail is equipped with a mounting panel, with the similar square structure as of the receiving panel; the thickness of the mounting panel is less than a clearance between the pocket guiders and the outer surface of the receiving panel which helps to their connection. For safety purposes, the receiving panel is supplied with beveled guiding sides, and the mounting panel – with lower rounded corners; the lower part of the functional compartment has a concrete basis for safe mounting–remounting operations; the auxiliary portion has a movable ladder for safe transportation of people from the passenger compartment to the auxiliary portion.

To allow a completely mechanized washing of building walls and windows, with the help of a cabin, the back surface of the cabin is equipped with an attachable frame supplied with round mechanical brushes and a profile with holes for fluid sprayers and air routes. To ensure a possibility of mounting – demounting operations of the attachable frame, this frame is equipped with fixing handles.

Objects of the Invention

It is an object of the invention to provide vertical and horizontal transportation to the outside surface or roof of a building.

It is an object of the invention to transport fire-fighting equipment at any point on the outside of a building.

It is an object of the invention to rescue people from buildings during fires or other emergencies.

It is an object of the invention to transport construction materials to any part of a building under construction.

It is an object of the invention to provide a platform for construction or maintenance personnel for working on a building.

It is an object of the invention to provide a transportable fire fighting and rescue system to high-rise structures.

It is an object of the invention to quickly and easily attach the elevator to the rail on the outside of a building.

It is an object of the invention to add a rail section to the building rail system with the elevator on the added rail section to quickly install the elevator on the building.

It is an object of the invention to provide a telescopic arm consisting of two parts, interconnected with a pivoting mechanism; the telescopic arm, being pivoted to a cramp with a vertical rotating mechanism; the cramp being pivoted to an outside platform supplied with a barrier to which a cabin is hanged to capable to make full rotation around its vertical axis.

It is an object of the invention to provide the elevator portion with a passenger compartment with sliding doors, and a vertical aperture with a staircase, consisting of two parts – on elevator portion and on autonomous rescue elevator, - leading to an autonomous rescue elevator; this elevator having a hatch under the vertical aperture.

It is an object of the invention to provide, for safety purpose, elastic elements on a contact cabin platform and on supporting elements of an autonomous rescue elevator.

It is an object of the invention to provide compartments, in a cabin, an elevator portion and in an autonomous rescue elevator, - for permanent additional fuelling and liquids.

It is an object of the invention to provide additional control panel in a passenger compartment.

It is an object of the invention to provide guiding slots in working surfaces of an H-shaped rail for base tires.

It is an object of the invention to coordinate the movement of the platforms on the faces of a building with each other and other elevators for rescues and other functions.

It is an object of the invention to provide a platform across the face of a building for fire-fighting.

It is an object of the invention to provide a platform across the face of a building for use in building construction and building maintenance.

It is an object of the invention to provide a functional compartment in a building; in this

compartment a sliding frame is mounted, connected with jack mechanisms, which help the sliding frame move beyond the outer limits of a building and back. Safe and smooth sliding of the frame are ensured by supporting wheels inter- connected with guiders in the surfaces of the functional compartment.

It is an object of the invention to provide a receiving panel in the front part of the functional compartment, with "pocket" guiders on the right and left sides of the panel.

It is an object of the invention to provide connection of the attachable section of the H-shaped rail with the receiving panel; the attachable section of the H-shaped rail is equipped with a mounting panel of the same square configuration as of the receiving panel; the thickness of the mounting panel is less than a clearance between mounted "pocket" guiders and outer surface of the receiving panel – to ensure their connection.

It is an object of the invention to provide the receiving panel with beveled guiding sides, and the mounting panel – with lower rounded corners – for safe connection.

It is an object of the invention to provide a concrete basis in the lower part of the functional compartment – for safe mounting-demounting of the attachable section of the H-shaped rail.

It is an object of the invention to supply the auxiliary portion with a movable ladder – for safe transportation of people from the passenger section to the auxiliary portion.

It is an object of the invention to provide, on the back surface of the cabin, an attachable frame with round mechanical brushes and a profile with holes for fluid sprayers and air routes – for a possibility of a completely mechanized washing of building walls and windows.

It is an object of the invention to supply the attachable frame with fixing handles – to ensure possible mounting-demounting of the attachable frame on the back surface of the cabin.

Other objects, advantages and novel features of the present invention will become apparent from the following description of the preferred embodiments when considered in conjunction with the accompanying drawings.

Brief Description of the Drawings

Figure 1 shows a front view of the invention on a building with the self-propelled unit supporting a fire-fighting system.

Figure 2 shows a top cross section of the elevator column.

Figure 3 shows a side view of the elevator with crane and a rail section on a transport vehicle.

Figure 4 shows a side view of the elevator with crane being installed on a rail.

Figure 5 shows a top view of the elevator with the arms open and wheels disengaged from the rail at the time of elevator installation on the rail.

Figure 6 shows a top view of the elevator with the arms closed and wheels engaging the rail with the self- propelled unit deployed on the rail.

Figure 7 Figure 7 is a front cross sectional view of an elevator connected to the rail and a trolley.

Figure 8 shows a top cross sectional view of an elevator on the H shaped rail.

Figure 9 Figure 9 is a side cross sectional view of the elevator with crane on the H shaped rail.

Figure 10 shows a side view of the elevator with crane on a transport vehicle.

Figure 11 is a top view of the elevator with crane and rail section being attached to a building.

Figure 12 is a top view of the elevator wheels and gear wheels on a rail.

Figure 13 is a side view of the elevator wheels and gear wheels on a rail.

Figure 14 is a perspective view of the rail attachment section.

Figure 15 is side view of the elevator on the attachment section being installed on a building.

Figure 16 is a perspective view of the transport vehicle installing the elevator and attachment section to a building.

Figure 17 is a front view of a building having the elevator and crane system used for fire fighting and rescue.

Figure 18 shows another side view of the invention on a vehicle.

Figure 19 shows a top view of the invention according to Figure 18 on a vehicle.

Figure 20 shows a top view of the elevator portion installed on the H shaped rail.

Figure 21 shows a front view of the elevator portion installed on an H-shaped rail.

Figure 22 shows a perspective view of the attachment section of an H-shaped rail.

Figure 23 shows a side view of the attachment section of the H shaped rail.

Figure 24 shows a perspective view of the elevator portion being installed onto the H shaped rail.

Figure 25 shows a side view of the elevator portion being connected with the cabin.

Figure 26 shows a side view of the elevator portion being connected with the autonomous rescue elevator.

Figure 27 shows a front view of a building having the elevator and crane system used for fire-fighting and rescue.

Figure 28 shows a side view of the invention to a functional compartment of a building

with a moved-in sliding frame.

Figure 29 shows a side view to the functional compartment of the building with a moved-out sliding frame.

Figure 30 shows a front view of the attachable section of an H-shaped rail at the moment of its connection with a permanently installed H-shaped rail.

Figure 31 shows a perspective view of the elevator portion being installed onto the H-shaped rail.

Figure 32 shows a front view of a building having the elevator and crane system used for fire-fighting and rescue.

Figure 33 shows a perspective view of the cabin with the installed equipment for mechanized washing of building walls and windows.

Figure 34 Fig. 1 shows two faces of a building equipped with a corridor extending between two elevator on the outside of a building, plus an elevator cab, and an elevator with crane, used during a fire.

Figure 35 shows a front view of the side of a building equipped with rails on the outside of the building and having two elevators supporting a corridor.

Figure 36 a front cross sectional view of a portion of a corridor supported by an elevator on the face of a building.

Figure 37 shows a top view of elevators supporting corridors at the corner of a building showing how the corridors interact.

Figure 38 shows a top view of the elevator connected to a rail on the outside surface of a building and a portion of the corridor on the elevator.

Figure 39 shows a side view of the elevator connected to a rail on the outside surface of a building and a portion of the corridor on the elevator.

Figure 40 shows a side view of the base of a building having an elevator with a crane and an elevator on a rail attached to the side of a building.

Description of the Preferred Embodiments

High-rise buildings are hazardous during fires since fire-fighting equipment is limited to reaching only the lower floors because ladders, cherry pickers and other equipment have limits of extension well short of the upper floors. A further hazard is that inside elevators cannot be used during a fire since people could become trapped inside the elevators or be exposed to smoke. It therefore becomes difficult to evacuate a high-rise building during a fire, to rescue people trapped inside or to fight the fire.

In high-rise buildings it is difficult to gain access to the face of the building from the outside on the upper floors. It is particularly necessary to access the face of the buildings during fires such that fire fighters can extinguish the fire and to rescue people on the upper floors.

Further, it is useful to have equipment on the building for access to the outside surface for window washing and maintenance. The equipment can also be used during construction to haul materials and workmen to the positions on the outside of the building or to access the upper floors and roof during construction.

The invention contained an elevator portion for traveling vertically up and down on the outside of a building, and a crane portion for extending an arm to a desired location on the building. The crane portion can support a passenger cabin for fire rescue. It can also have fire-fighting equipment for an access to all parts of a building. The crane is used for extending a cab to any point on the face of the building for fire fighting and for rescuing people in the building.

This system doesn't allow to transfer or evacuate people directly from a cabin to an elevator portion and to an autonomous rescue elevator (and back), and from an elevator portion to the autonomous rescue elevator (and back).

Also another feature added to the elevator system for the outside of a building which can be used to increase the number of people who can be rescued and provide for better access to the face of the building for use during emergencies of for building construction or maintenance.

Also cables may be used to lift and lower the elevator on the rails attached to the outside of the building. The cables allow for the elevator cab to be lighter since the electric motors for propelling the elevator can be moved to the building to operate the cables rather than being in the elevator.

Also a second elevator may be added running on the rail in conjunction with the elevator and crane to increase the transportation capacity during an emergency such that more people can be rescued in a shortened time frame.

As shown in Fig. 1 the invention provides a vertical column or rail 1 attached to the outside surface of a building 2 and an elevator car or elevator cars 3 and 4 attached to the rail 1 for riding up and down the outside of the building 2. The rail 1 on the side of building 2 can be an I beam, an H shaped rail, a pole, or any other support. The rail 1 can have a high friction surface 26 for engaging wheels 27 in the elevator portion 3. As shown in the figures the an H shaped rail 1 having a frictional surface 26 is engaged by wheels 27 having elastic tires for gripping the rail 1 on the connecting center portion of the H shape to prevent left to right movement on the rail relative to the building 26. The wheels are supported on frames 53 attached to spreadable arms 54. The arms 54 pivot on hinge and are opened or closed by moving pistons 56. When arms 54 are opened the elevator portion 3 can be removed from the H shaped

rail 1. When the arms 54 are clamped closed on the H shaped rail 1 the elevator portion 3 is attached to the rail 1. The back of the H shaped rail is attached to the building 2. With the elevator portion 3 attached to the rail 1 additional wheels on the spread arms 54 rotated 90 degrees to the first set of wheels have tires to engage the inside surface of the top of the H shaped rail 1. Additional wheels with tires engage the outside surface of the top of the H shaped rail 1. The wheels on the inside and outside of the top of the H shaped rail 1 are pressed together by a jack device 56 engaging telescoping beam 58 to push the engine compartment 86 and its attached wheels against rail 1. An engine compartment 86 has an engine or electric motor for providing power to the wheels attached for propelling the elevator portion 3 along the rail 1. Guides 30 indented in the rails 1 engage wheels such as cogwheels 31, which engage apertures in the rail 1 to grippingly engage the rail. A brake 60 can be used for stopping the elevator portion 3 in emergencies by pulling on emergency break 61 in cabin 3, connected to brake cable 62. In some embodiments the cogwheels 31 can be used as the drive wheels.

Building 2 has a housing 5 on the roof containing lifting mechanism, which comprises motors 7 and 8 for driving two separate spools 9 and 9 respectively, having two separate cables 35 and 10 respectively, for lifting or lowering the elevator cars 3 or 4.

Elevator 4 is stored in housing 5 until it is needed. It is aligned with emergency exits 11 on the outside of building 2 for evacuating people during emergencies such as a fire.

Shock absorbing elements such as springs 12 at the base of column 1 help provide a smooth stop for elevator car 4 at the base of building 2.

An auxiliary power supply 13 can be used to supply power to the motors 7 and 8 to power the elevators 3 and 4 in case of a power outage in the building 2. The power supply 13 plugs into the column 1 at electrical connector 14.

The controls for elevators 3 and 4 can be in the elevators or remotely controlled from ground at control station 15.

Elevator 3 has a crane portion attached on the top. The crane portion comprises a pivoting mechanism 16, a turning mechanism 17, a telescoping arm 18, a pivoting mechanism 19, and a cabin 20, a cabin with a platform or just a platform. The cabin or platform 20 can support fire fighting equipment 22 and firemen 23. The cabin 20 can be rotated on turning mechanism 24. The crane portion can position the cabin 20 at any desired position along the face of the building 2 by a combination of the elevator 3 moving up or down, and the crane portion using the pivoting mechanism 16 to swing the telescoping arm 18 to the desired angle and then extending or retracting to a desired position adjacent building 2. The turning mechanism 17 can move the cabin 20 toward or away from the building 2. The turning mechanism 24 can rotate the cabin 20 to align doors on the cabin with the building or to align

fire-fighting equipment with the building. The cabin 20 can be used to rescue people who cannot get to the emergency exits 11. Although the specification discloses telescoping arms any type of arm may be used such as a rail and a wheel arrangement in order to have a movement along the arm. The cabin can be manned or unmanned. Fire fighting equipment can be remotely controlled from the ground. Sensors, cameras, microphones, smoke detectors and other devices in the cabin can be used to help locate fires from the outside of the building and rescue people trapped therein.

The cabin 3 can be of many different types for different uses. As a fire fighting cabin it can have fire hoses, heat sensors, and insulated fire resistant walls. The cabin 3 may have a door adjacent the building for effecting rescues and evacuating people trapped in high-rise buildings. The cabin may also be a working platform for workers to stand in during construction of a building. The cabin 16 can also be replaced by a platform or support device like a hook for hauling materials up a building during construction. Such a device would be useful for installing or cleaning windows or installing paneling or maintaining on the outside of buildings.

The vertical column 1 can be attached to a building 2 as the building is being constructed or it can be added to an existing building. The vertical column 1 can have expansion joints 25 between sections of rail 1. The expansion joints 25 can be made out of an alloy or material which is fireproof and has a low coefficient of expansion with temperature. The rail being on the outside of the building affords transportation on the outside of the building away from flames and smoke. The cabin can be swung away from the building in danger zones. The cabin can be positioned adjacent the sides of a building or over the top of a building.

As Fig. 2 shows, vertical column or rail 1 has an H shape and has several features designed for use with elevators 3, 4. The vertical column 1 has a high friction coating 26 to make a better contact with tires 27 on the elevators 3 and 4. A power cable channel 28 in the H shaped vertical column 1 allows electrical power cables 29 to access the roof to drive motors 7 and 8. Guides 30 on the outside face of vertical column 1 allow for wheels 27 or cog wheels 31 on the elevators 3 and 4 to engage the teeth 76 on vertical column 1 and keep the elevators 3, 4 aligned on the column 1. Lights 33 may also be installed on the vertical column 1 to help during nighttime operations.

The H shaped vertical column 1 also has a trolley channel 34 for cables 35 and 10 to travel in. The cables 35 and 10 are connected to trolleys 37 and 38, which run separately in trolley channel 34. Trolley 37 is attached to elevator car 3 and trolley 38 is attached to elevator car 4. Trolley wheels 39 engage the trolley guides 40 in the trolley channel 34.

As shown in Fig. 3 the elevator 3 and the crane portion are transportable to building 2 by a truck 41. If the elevator 3 is for fire fighting the truck 41 may be a specialized fire truck. If the

elevator is used during construction or maintenance the truck may be a construction truck. When truck 41 arrives at building 2 the elevator 3 is attached to the rail 1. When finished with its work, elevator 3 can be removed from the rail 1 and used on another portion of the same building or moved to a different building.

Fig. 4 shows elevator 3 being installed on vertical column 1. Truck 41 is adjacent the building 2. The top surface 42 of the truck 41 has a rotating mechanism 43 for turning pivoting mechanism 44 which has a telescoping arm 45 attached. Telescoping arm 45 is connected to pivoting mechanism 46, which is connected to holding mechanism 47 for holding elevator 3 in position for connecting it to vertical column 1.

Fig. 9 shows how the elevator 3 is lifted into place by holding mechanism 47. Forklift tines 48 are inserted into a portion of the elevator 3. The fork lift tines 48 have apertures 49 which are engaged by jack elements 50 to lock the elevator 3 onto the fork lift tines 48 while the elevator 3 is being positioned against rail 1. A stabilizing slot 51 on elevator 3 helps hold the elevator 3 in position on holding mechanism 47, which fits into the slot. Optionally electromagnets 52 can be used to either hold the elevator 3 in position relative to the holding mechanism 47 or act in conjunction with the fork tines 48 to hold the elevator 3 in place.

As shown in Figs. 5, 6 and 7 the H shaped column 1 is engaged by elastic tires 27 on wheels 27, to prevent left to right movement on the rail 1 relative to the building 2. The wheels 27 are supported on frames 53 attached to spreadable arms 54. The arms 54 pivot on hinge 55 and are opened or closed by operating pistons 56. When arms 54 are opened the elevator portion 3 can be removed from the H shaped rail 1. When the arms 54 are clamped closed on the H shaped rail 1 the elevator portion 3 is attached to the rail 1.

With the elevator portion 3 attached to the rail 1 additional wheels 27 having tires 27 on the spread arms 54 rotated 90 degrees to the first set of wheels 27 have tires 27 to engage the inside surface of the top of the H shaped rail 1. Additional wheels 27 with tires 27 engage the outside surface of the top of the H shaped rail 1. The wheels 27 on the inside and outside of the top of the H shaped rail 1 are pressed together by a jack device 57 engaging telescoping beam 58 to push tires 27 against rail 1.

Guides 30 indented in the columns 1 engage wheels such as cogwheels 31, which engage apertures in the columns 1 to grippingly engage the column 1. A brake having break calipers 59 operating on disc 60 attached to cog wheel 31 (Fig. 9) can be used by operating brake lever 61 attached to brake cable 62 for stopping the elevator 3 in emergencies by pulling on break lever 61 in cabin 20 on elevator 3 or in elevator 4.

With elevator 3 held in place on column 1 it can be connected to trolley 37 by a cable 65 having an eye connector 65 on the end of the cable and placed on hook 66, which is attached by

a cable 246 to the trolley 37.

Elevator 4 as shown in Fig. 8 is attached to column 1 in a similar manner as elevator 3, the difference being that elevator 4 is permanently connected to the column 1. Therefore wheel frame 53 is permanently in place for holding the tires 27 on wheels 27 against column 1.

In some embodiments the cogwheels 31 can be used as the drive wheels. An engine compartment, in Fig. 9, has an engine or electric motor for providing power to drive wheels 31 for propelling the elevator portion 3 along column 1. In this embodiment the cables 35 and 10, the trolleys 37, 38, the trolley channel 34 and the housing 5 with its associated motors 7, 8 and spools 9, 9 are not needed. In all the embodiments the elevator 4 or cabin 3 can carry passengers. The elevators can have fireproof doors 67 and fireproof windows 68 and walls.

Elevator 4 can be directly connected to trolley 38 without intervening cables since it is permanently connected to rail 1.

Although the elevator portion has been shown with engines or motors inside, a cable system or hydraulic system can be used to transport the elevator portion up the rail attached to the building. Further other means of attaching the elevator portion to the building other than rails with wheels for engaging the rails are within the scope of the invention.

Cabin 20 has an access hatch 69 for climbing out of the cabin 20 to the top of the cabin, which has a flat roof for standing on and a railing 70. Fire fighting equipment 22 such as a nozzle can be used to spray water, foam or chemicals on a fire. A hatch 68 in the roof of cabin 20 provides for movement from the inside to the outside of the cabin.

In an alternative embodiment as shown in Figs. 10 the arms 54 for attaching the elevator to the rail 1 and the associated telescoping beams 58, hinges 55 and operation pistons 56 can be eliminated thus reducing weight and the complexity of the system. The motors 7, 8, cables 35, 10 and housing 5 on the roof containing lifting mechanism and associated elements can be eliminated and replaced with a direct drive from the elevator 3 or elevators 3 and 4.

When the elevator crane 3 is needed at a building 2 in an emergency such as a fire, or for other uses, a truck 101 having a bed 102 with a pivoting mechanism 44 and rotating mechanism 43 attached arrives at the building 2 near rail 1 to attach a removable rail section 72 and elevator 3 to the building 2 under an existing rail 1. The pivoting mechanism 44 and rotating mechanism 43, raises and turns telescoping arm 45 which extends to move the holding mechanism 120 toward building 2. The pivoting mechanism 127 and rotating mechanism 16 tilt the holding mechanism 53 to an upright position for attaching the removable rail section 72 to building 2 directly beneath rail 1.

As best seen in Fig. 15 building 2 has rail 1 attached which does not extend all the way to the ground. Removable rail section 72 is placed against the building 2 by sliding the slit

guides 128 onto fork elements 125 on building 2. The removeable rail section 72 will be guided into place against the building 2 and the holding mechanism 120 can then be detached from the elevator 3 by removing screw holders 187 from the tapped hole 188 in the slit guide 186 and aperture 186 in fork element 186 on holder120. The fork element 186 can then be withdrawn by telescoping arm 18 and the removable rail section 72 can be maneuvered by handles 131 such that the apertures 137 match up with bolt holes 130 in building 2 and screws 136 are inserted to secure the removable rail section 72 to building 2. Screw caps 129 may be installed on building 2 to plug the bolt holes 130 and protect them when the removable rail section 72 is not attached to the building. If the screw caps 129 are installed they must be removed before screws 136 are installed.

Spring dampers 190 are mounted on removable rail section 72 to provide safety conditions during installation and removal. A screw 136 is also used to secure angular element 134 to rail guide 132 by use of threaded element 135 to align and properly space the removable rail section 72 with respect to rail 1 on building 2. The alignment is important to provide toothed carriage rails 92 with the proper spacing for the driving gear wheels 93 at the interface of the removable rail section 72 and the toothed carriage rails 92 in rail 1 permanently attached to building 2. The gear wheels 93 are connected to motor to provide power to the elevator 3. The gear wheels 93 may also have breaks to stop the elevator 3.

As shown in Fig. 12 elevator 3 has wheels 94 which ride on slit guides 95 in rail 1. The sets of wheels 94 are placed perpendicular to each other to provide prevent the elevator from wobbling in two dimensions on rail 1.

Instead of the removable rail section 72 being attached to building 2 at ground level a platform 107 may be used to provide access to the position of attachment of the rail section 72 above the ground. Such an arrangement may be useful to guarantee access to the base of the rail 1 due to snow, parked cars, or other obstructions on the ground.

In other embodiment the invention contained a device 146 and an elevator portion 98 - for traveling vertically up and down on the outside of a building, and a crane portion - for extending an arm (telescopic) to a desired location on the building. The telescopic arm consists of two parts which are interconnected with the help of a pivoting mechanism. The telescopic arm has a pivot at its end attached to a cramp, with the help of a vertical rotating mechanism. The cramp, also, is pivoted, with the help of vertical rotating mechanisms, to an outside platform supplied with a barrier; a cabin is hanged onto the platform. The cabin itself can rotate 360 degrees around its vertical axis-with the help of a rotating mechanism. The cabin has inside a passenger compartment, with sliding doors – to ensure personnel's work and evacuation of people.

An outside platform, supplied with a barrier, has a fire-fighting equipment – to access all parts of a building. The crane portion can also haul building materials to any part of a building under construction and can be used for walls and window washing (hand) or other maintenance activities on the building.

The elevator portion 97, with its supporting wheels 6 and the driving cog-wheels 93 has connection with the attachable section 98 of the H-shaped rail.

The attachable section 98 of the H-shaped rail can be mounted onto a building wall 105 with consequent connection to a permanently installed H-shaped rail 106 – on this wall. As shown in Figs. 28, 29 and 16, the invention provides a functional compartment 169 (in a building 105) wherein a sliding frame 170 is installed, connected with the jack 141 mechanisms 171. The sliding frame 170, with the help of these jack mechanisms 171, 120 can slide out beyond the building limits and back. Smooth and safe sliding of the 140 frame 170 are ensured by its supporting wheels 172 which slide in the guiders 173 121 mounted on the surfaces of the functional compartment 169. The sliding 119 compartment, in its front part, is supplied with a receiving panel 174 with mounted "pocket" guiders 175 mounted on the left and right sides of the receiving panel 174.

As shown in Figures 28, 29, 30 and 16, the attachable section 98 of the H-shaped rail is supplied with a mounting panel 176 –to ensure a possibility of connection with the receiving panel 174, with the similar square structure as of the receiving panel 174. The thickness of the mounting panel 176 is a little less than the clearance between the mounted "pocket" guiders and outer surface of the receiving panel 174 – which helps to make their connection.

As shown in Figure 30, the receiving panel 174 is supplied with beveled guiding sides 177, and the mounting panel 176 – with lower rounded corners 178 – to ensure safe connection.

As shown in Figures 28, 28, 16 and 32, the lower part of the functional compartment 169 of the building 105 is provided with a concrete basis 179 – for safe mounting – demounting of the attachable section 98 of the H-shaped rail.

As shown in Figures 16 and 32, the auxiliary portion 107 is supplied with a portable ladder 180 – for safe transportation of people from the passenger compartment 114 of the elevator portion 97 to the auxiliary portion 107 and back.

As shown in Figure 33, the back surface of the cabin 100 is supplied with attachable frame 181 with round mechanical brushes 182 and a profile 183 with holes for fluid sprayers and air routes – for a possibility of a completely mechanized washing, with the help of the cabin 100, of building walls and windows.

As shown in Figure 33, the attachable frame 181 is supplied with fixing handles 184 – to ensure possibility of mounting-demounting of the attachable frame 181 on the back surface of

the cabin 100.

The elevator portion 97 with the attachable section 98 of an H-shaped rail, as well as the whole attachable structure with the telescopic arm 99 and the cabin 100, is mounted on the chassis 101, as shown in the Figure 18. In case the elevator portion isn't at work, it is to be kept in such position in a special hangar (fire depot). When the depot gets a fire alarm, the chassis 101 being kept on the top surface 102 together with the elevator portion 97, is delivered to the building on fire immediately.

As shown in the Figure 16, when the chassis 101 is delivered to the building on fire 5, 140 148 the chassis 101 is placed close to a n H-shaped rail permanently located on the 151 building, and the auxiliary portion 107 of the building. After that, the process of installment of the elevator portion 97 and of the attachable section 98 of an H-shaped rail to a building wall starts, as it is shown in Figures 28, 29, 30 and 16.

The installment of the elevator portion 97 and of the attachable section 98 of an H-shaped rail to the building wall is as follows:

With the help of a vertical pivoting mechanism 122, the telescopic rotating pole 119 is lifted to a level approximately 45 degrees in relation to the top working surface 102 of the car chassis 101. At the moment, a holding bed mechanism 120, due to its vertical pivoting mechanism 121, is kept strictly horizontal. Then, with the help of a horizontal rotating mechanism 168, the telescopic rotating pole 119 with the holding bed mechanism 120 on which the elevator portion 97 with the attachable section 98, is turned towards the building 5.

After that, the holding bed mechanism 120, with the help of its vertical pivoting mechanism 121, is rotated 90 degrees to a strictly vertical position. At the same time, with the help of the pivoting mechanism 124 and of a horizontal rotating mechanism 123, the first part of the telescopic arm 99 is lowered towards the building 105 – approximately 45 degrees in relation with the vertical axis of the elevator portion 97. With the help of the pivoting mechanism 108, the second part of the telescopic arm is lowered approximately 90 degrees in relation with the first part of the telescopic arm 99. With that, the cramp 109, with the help of the vertical rotating mechanism 110, is placed into a strictly vertical position. At the same time with the cramp 109, the cabin 100 is aligned into a strictly vertical and horizontal position by the vertical rotating mechanisms 111 and a horizontal rotating mechanism 113. At the same time with that, the jack mechanisms 171 are put into action, which move out the sliding frame 170 – from the functional compartment 169 of the building 105. As a result of this movement, the receiving panel 174, mounted on the outer end of the sliding frame 170, gets moved out onto the concrete basis 179 (approximately 1.5 meters). Such smooth and safe movement of the sliding frame 170 is ensured by its supporting 95 wheels sliding in the guiders 173 mounted on the

surfaces of the functional compartment 169.

Then, the telescopic rotating pole 119 is moved towards the building wall 5 in such way that the lower part of the outer surface of the mounting panel 176 touches the upper part of the outer surface of the receiving panel 174.

After that, with the help of the rotating mechanisms 121, 126 and 127, the holding bed mechanism 120 is aligned until the mounting panel is installed strictly parallel, with all its surfaces, in relation with the receiving panel 174. Then, with the help of the vertical pivoting mechanism 122, the telescopic rotating pole is lowered down. As a result of this movement, the mounting panel 176 starts moving into the "pocket" guiders 175 of the receiving panel 174. At that, this safe and smooth connection and installation will be ensured by beveled guiding sides 177 of the receiving panel 174 and by lower rounded corners 178 of the mounting panel 176.

After the mounting panel 176 is completely installed (lowered) into the pocket guiders 175 of the receiving panel 174, the upper beveled surface of the attachable section 98 of an H-shaped rail will be located a few millimeters lower than the lower beveled surface of an H-shaped rail, and the vertical axis of both rails 98 and 106 will be strictly parallel.

As the elevator portion 97 and the telescopic arm 99, and the cabin 100 are installed on the attachable section 98 of an H-shaped rail , then, after the above-described 100 installation it is possible to remount the elevator portion 97 from the holding bed mechanism 120. For this purpose, the holes 138 of the fork elements 139 are disconnected from jack latches 140 of the elevator portion 97. Then, by moving the telescopic rotating pole 119, the slots 141 located in the body of the elevator portion 97, are disconnected from fork elements 139 of the holding bed 170 mechanism 120.

The loading-unloading holding bed 120, freed after this operation, is rolled up and placed into a transport position on the top surface 102 of the chassis 101. (The demounting operation of the elevator portion 97 and of the attachable section 98 is made by a vice versa action). Simultaneously with that, the jack mechanisms 171 are put into action, which move the sliding frame 170 into the functional compartment 169 of the building 105. As a result of this movement, the receiving panel 174 mounted on the outer end of the sliding frame 170, and, also the attachable section 98 of an H-shaped rail with the elevator portion 97 mounted on it, are moved towards the building wall 5.

After this operation is completed, the upper beveled surface of the attachable section 95 98 of the H-shaped rail gets located (within a few millimeters) under the lower beveled surface of the H-shaped rail, and their vertical axis are coincided -as shown in Figures 28 and 30. As a result, the attachable section 98 of the H-shaped rail and the permanently mounted on the building H-shaped rail 106 get formed a unified line of an H-shaped rail 139 on the building

wall 105.

Drive structure 142 located in the body of the elevator portion 97, is activated, and, in its turn, puts into action the driving cog-wheels 93 which, interacting with the guiding racks 92 of the guiding slots 144, start moving the elevator portion 97 on the attachable section 98 of the H-shaped rail. Simultaneously, the wheels 94 start moving in the guiding slots 95, securing a stable position of the elevator portion 97 on the H-shaped rail. Thus, the elevator portion 97 travels from the attachable section 98 of the H-shaped rail to the permanently mounted (on the building 105) H-shaped rail 106, and it can now travel in both directions along the length of the H-shaped line to any high level of the building 5.

Correspondingly, it becomes possible to immediately move the elevator portion 97 to that dangerous floor level (on fire) of the building 105, and to start fire-fighting operations with the help of a fire/foam pipe 146 mounted on the outside surface 112, with the barrier of the cabin 100 – as it is shown in Figure 32. Simultaneously with the lifting of the elevator portion 97 to a dangerous level/floor, mounting of an autonomous rescue elevator 118 starts.

To ensure a possibility of such operation, first, the disconnected attachable section 98 of an H-shaped rail is demounted. It is done in the following consequence:

The jack mechanisms 171 are activated, which move out the sliding frame 170 from the functional compartment 169 of the building 5. As a result of this movement, the receiving panel 174, mounted on the outer surface of the sliding frame 170, and also, the attachable section 98 of the H-shaped rail get moved out onto the concrete basis 179 (approximately, 1.5 meters). With the help of the horizontal rotating mechanism 168 and the vertical pivoting mechanism 122, the telescopic rotating pole 119 is turned and lifted towards the building 105 – to the location of the attachable section 98 of the H-shaped rail.

Then, with the help of the rotating mechanisms 121, 126 and 127, the holding bed mechanism 120 is aligned in such way that its fork elements 139 get located opposite the slots 186 of the tray 190 of the attachable section 98 of the H-shaped rail. Simultaneously with that, the screw fixing mechanisms 187 are screwed out of the screw holes 188 of the tray 190, preparing, by this, the slots 186 to locate in them the fork elements 139 of the holding bed mechanism 120.

Then, the telescopic rotating pole 119 is moved out - until the fork elements 139 of the holding bed mechanism 120 are completely moved into the slots 186. Next, the screw fixing mechanisms 187 are screwed back into the screw holes 188 of the tray 190, - fixing, by this, the attachable section 98 of the H-shaped rail on the holding bed mechanism 120. After that, the telescopic rotating pole 119 is lifted - until the mounting panel 176 of the attachable section 98 of the H-shaped rail gets moved out from the pocket guiders 175 of the receiving panel 174.

Then, with the help of the telescopic rotating pole 119, the above attachable section 98 of the H-shaped rail is transported to the spare parking space near the building 5, close to the auxiliary portion 107, and is unloaded there.

Now, when the receiving panel 174 is free, it's possible to start mounting of an autonomous rescue elevator 118.

For this purpose, the chassis 101 travels from the auxiliary part of the building 107, when the chassis 101 delivers the elevator portion 97 to the building 105, it makes the surface vacant for another chassis 101 with the autonomous rescue elevator 118. After the parking of the chassis 101 with the autonomous rescue elevator 118 is completed (on the vacant surface at the auxiliary part of the building 107), the rescue elevator is being mounted to the building 105. The autonomous rescue elevator 118, like the elevator portion 97, has connection to the attachable section 98 of the H-shaped rail – through the elastic tire wheels 94 and the drive cog-wheels 93.

The chassis 101, to which the autonomous rescue elevator 118 was delivered (to the building 105), has the same loading-unloading mechanism, as on the previous chassis 101 with the elevator portion 97 delivered (with the rotating mechanisms 121, 122, 168, 126 and 127) and with the telescopic pole 119 and the holding bed mechanism 120.

In view of this, the sequence of mounting operations for the rescue elevator 118 to the building 105 (as well as the demounting ones) is the same as with the elevator portion 97. After the autonomous rescue elevator 118 is installed on the H-shaped rail, it is being lifted, after the elevator portion, to the building level on fire. While the elevator portion 97 is already on the required level and it starts fire-fighting operations - with its own fire/foam pipe 146 installed on the outside surface 112, with the barrier. Simultaneously with the fire-fighting operations, the cabin 100 of the elevator portion 97 can start evacuating people which can't use fire staircases and escape exits. For this purpose, the cabin 100 is transported to a window embrasure of the building 5 where the people are located.

Then, a safe junction of the cabin's surface 100 with the sliding doors to the window embrasure is made – with the help of an elastic profile element 147 – along the perimeter of the sliding doors 148.

Next, the sliding doors 148 are opened, and the people escape from the dangerous building level – though the window embrasure to the cabin 100.

By that moment, the autonomous rescue elevator 118 came up to the level of a dangerous floor and aligned with the lower surface of the elevator portion 97 – with the help of its elastic profile element 149 mounted on the upper surface of the elevator. The cabin 100 with evacuated people is transported to the outside surface of the autonomous rescue elevator 118, with sliding doors 115 supplied with fireproof glasses 151.

Then, as it is shown in Figure 26, the surface of the cabin 100 with the sliding doors 148 is aligned with the outside surface of the autonomous rescue elevator 118 with the sliding doors 115. Close and safe fitting of the cabin 100 to the autonomous rescue elevator 118 is made with the help of the elastic profile element 147 along the outer perimeter of the sliding doors 148 of the cabin 100, and also, with the help of supporting elements with elastic gaskets 152 of the autonomous rescue elevator 118.

Next, the sliding doors 148 of the cabin 100 and the sliding doors 115 of the autonomous rescue elevator 118 are opened, and the evacuated people leave the cabin 100 for the autonomous rescue elevator 118. Then, all these sliding doors are closed; the cabin 100 disconnects from the autonomous rescue elevator 118 and returns to the dangerous level of the building 5, and the autonomous rescue elevator 118 transports the people down – to the auxiliary part of the building 107.

Such operations are to be continued until all the people from the dangerous level are evacuated.

The present invention also allows a speedy evacuation of people from a dangerous level of the building. It is especially important when there are many people on the dangerous level or if that level is very high.

Such possibility is realized by:

Variant A – a passenger compartment 114 of the elevator portion 97, which outside surface is supplied with sliding doors 115 equipped with fireproof glass windows 151.

Variant B - emergency exits 154 of the building located on each floor of the building 5 – symmetrical to the vertical axis of the sliding doors 155 of the autonomous rescue elevator 118.

Variant A – Passenger compartment 114 of the elevator portion 97, which is put into action when the cabin 100 is full and the autonomous rescue elevator 118 hasn't returned to the elevator portion 97 – to pick up a new group of evacuated people; in such case, the cabin 100 with the evacuated people is transported and aligned to the passenger compartment 68 of the elevator portion 97 – as it is shown in Figure 25.

Close and safe fitting (alignment) of the cabin 100 to the surface of the passenger compartment 114 of the elevator portion 97 is fulfilled with the help of an elastic profile element 147 installed along the outer perimeter of the sliding doors 148 of the cabin 100, and also, with the help of supporting elements with elastic gaskets 152 of the elevator portion 97. Then, the sliding doors 148 of the cabin 100 and the sliding doors 115 of the passenger compartment 114 of the elevator portion 97 are opened, people leave the cabin 100 for the passenger compartment

114. All these doors are then closed state; the cabin 100 disconnects from the passenger compartment 114 and returns to the dangerous level of the building 5 – to pick up a new group of evacuated people.

By that time, the autonomous rescue elevator 118 has already traveled from the auxiliary part of the building 107 (where it unloaded the evacuated people) to the elevator portion 97 and aligned with it. After this alignment is completed, a hatch 156 of the passenger compartment 114, and a hatch 157 of the autonomous rescue elevator 118 are opened, and people go down from the passenger compartment 114 to the autonomous rescue elevator 118 –through the vertical embrasure 116 on the staircase 117.

As the capacity of the autonomous rescue elevator 118 is several times more than of the cabin 100, it is possible, at the same time, to align the cabin 100 with the autonomous rescue elevator 118 and to make a transfer of another group of evacuated people from the cabin 100 to the rescue elevator 118.

As a consequence of the above-described actions, the cabin 100 will be always in work, without waste of time, helping to timely evacuation of people from the dangerous level.

Variant B – Emergency exits 154 of the building will be put into action when some part of the building located below the dangerous level may be used for evacuation of people – the staircases there are not under fire or smoke, and if they are not destroyed. In such case, the autonomous rescue elevator 118 doesn't have to go down to the lowest level of the building 5 – to the auxiliary part (especially if it is a high-rise building). In such cases, to save time, the autonomous rescue elevator 118 with a group of evacuated people is lowered to a safe level of the building. There, the rescue elevator 118 will stop, and the sliding doors 155 of the elevator 118 will be aligned with the evacuation exit 154 of this floor (level).

The sliding doors 155 of the autonomous rescue elevator 118 and the door of an emergency exit 154 of the building are opened, and the people leave the rescue elevator 118 – to enter inside the building. Now, inside the building these groups of evacuated people walk down on the interior emergency staircases, and the autonomous rescue elevator 118 goes up – to pick up a new group of evacuated people.

The elevator portion 97 and the whole attachable structure (with the telescopic arm 99 and the cabin 100), as well as the autonomous rescue elevator 118 can be controlled by personnel – both from inside with the help of control panels 158, and from outside with the help of remote controls 159.

The elevator portion 97 and the whole attachable structure (with the telescopic arm 99 and with the cabin 100) and the autonomous rescue elevator 118 have a hermetic thermo-

insulating outer coating.

The elevator portion 97 and the whole attachable structure (with the telescopic arm 99 and with the cabin 100) and the autonomous rescue elevator 118 are provided with telemetric equipment (temperature, distance control and pollution sensors, camcorders, long distance lighting – searchlight projector 160, etc., speakers and radio).

The elevator portion 97, cabin 100 and the autonomous rescue elevator 118 have compartments 161 for auxiliary equipment, compartments 162 – for keeping fire-fighting materials – foam, water and oxygen, and also, terminals 163 and supplying hoses 164.

The elevator portion 97, cabin 100 and the autonomous rescue elevator 118 are supplied with batteries and terminals 163 – for charging them. The ensure safe and effective work of fire-fighting personnel on any level, the cabin 100 is provided with an outside surface 112 with a barrier, fire-pump 146, hatch 165 and a staircase 166. The elevator portion 97, cabin 100 and the autonomous rescue elevator 118 are equipped with hermetically closed sliding doors (accordingly, 115, 148, 115 and 155) and with fireproof glass windows 151.

The passenger compartment 114 of the elevator portion 97, cabin 100 and the autonomous rescue elevator 118 are provide with cleaning and air-conditioning systems, and with oxygen masks and set of medicines for emergency medical help. The H-shaped rail may be supplied with illumination means – to ensure visual control of the whole line during nighttime.

To avoid overheating of the H-shaped rail during the fire (and, accordingly, possible deformation), thermo-insulating sections 167 (made, e.g. of asbestos materials) are mounted on the rail surface (at equal distances, and without affecting its contour). To ensure safety, the spring shock-absorbers 190 are mounted on the upper part of the tray 190 of the attachable section 98 of the H-shaped rail.

To increase exploiting abilities, the H-shaped rail 106 is mounted in the vertical embrasure 98 which is located in the outer surface of the building 5. The deepness of the embrasure 98 is such that the outer surface of the H-shaped rail 106 doesn't extend over the outer limits of the building 5.

In another embodiment of the invention as it shown in Figs. 25 and 26, the invention provides a telescopic arm 99 consisting of two parts which are connected with a pivoting mechanism 108. The telescopic arm 99 at its end is pivoted to a cramp 109 with a vertical rotating mechanism 110.

The cramp, also, is pivoted with vertical rotating mechanisms 111 to an outside platform 112 provided with a barrier, on which a cabin 100 is hanged to. The cabin itself can make a full rotation around its vertical axis with the help of a rotating mechanism 113. The elevator portion 97 has a passenger compartment 114 with sliding doors 115 – for communication with the cabin

100, and a vertical aperture 116 with a staircase 117 – for communication with an autonomous rescue elevator 118.

As shown in Figs. 20 and 21, the elevator portion 97, through its elastic coated tires 94 and drive cogwheels 93, has connection with the attachable section 72 of an H-shaped rail. The elevator portion 97 with the attachable section 72 of an H-shaped rail, as well as the whole attachable structure with the telescopic arm 99 and the cabin 100, is mounted on the chassis 101, as shown in the Figs. 18 and 19. In case the elevator portion isn't in work, it is to be kept in such position in a special hangar (fire depot). When the depot gets a fire alarm, the chassis 101 being kept on the top surface 102 together with the elevator portion 97, is delivered to the building on fire immediately.

As shown in Fig. 24, when the chassis is delivered to the building on fire 105, the chassis is placed close to a permanently located on the building H-shaped rail and auxiliary portion 107 of the building. After that, the process of installment of the elevator portion 97 and of attachable section 72 of an H-shaped rail to a building wall starts, as it is shown in Figs. 23 and 24. The installment of the elevator portion 97 and of the attachable section of an H-shaped rail to the building wall 105 is as follows:

The telescopic rotating pole 119 is lifted to the level approximately 45degrees in relation to the top working surface 102 of the car chassis 101. At the moment, a holding bed mechanism 120, due to its vertical pivoting mechanism 121, is kept strictly horizontal. Then, with the help of a horizontal rotating mechanism 122, the telescopic rotating pole 119 with the holding bed mechanism 120 on which the elevator portion 97 with the attachable section 72 of an H-shaped rail, is turned towards the building 105.

After that, the holding bed mechanism 120, with the help of its vertical pivoting mechanism 121, is rotated 90 degrees to a strictly vertical position. At the same time, with the help of the pivoting mechanism 124 the first part of the telescopic arm 99 is lowered towards the building 105 – approximately 45 degrees in relation with the vertical axis of the elevator portion 97. With the help of the pivoting mechanism 108, the second part of the telescopic arm is lowered approximately 90 degrees in relation with the first part of the telescopic arm 99. With that, the cramp 109 with the help of the vertical rotating mechanism 110, is place into a strictly vertical position. At the same time with the cramp 109, the cabin 100 is aligned into a strictly vertical position by the vertical rotating mechanisms 111.

Then the telescopic rotating pole 119 is being turned towards the building wall 105 – until the fork elements 125 of the building 105 touch to the back panel of the attachable section 72 of an H-shaped rail.

Then, with the help of the pivoting mechanism 121 and rotating mechanisms 126 and 127, the position of the holding bed mechanism 120 is being aligned until the guiding slots 128 of the attachable section 72 of an H-shaped rail are placed strictly symmetrical, on all surfaces, in relation with the fork elements 125 of the building 105. Before that, mounting workers screw out all screw deadeners 129 from the threaded elements 130 in the walls of the building 105.

Then, mounting workers, with the help of hand-rails 131, make hand correction of the attachable section 72 of the H-shaped rail – until all outer ends of the fork elements 125 are placed into the guiding slots 128. Then, the telescopic rotating pole 119 is being moved until the back panel of the attachable section 72 of the H-shaped rail contacts the building 105.

As a result of that, the fork elements 125 are completely in the guiding slots 128, and the upper part of the attachable section 72 is in the guiding metallic profile 132. Due to that, holes 133 of the corner elements 134 become aligned on a vertical axis with the corner elements 135 of the guiding metallic profile 132. Mounting workers, then, connect these corner elements 134 with corner threaded elements 135, screwing the screws 136 to full stop. Also, workers screw to full stop the screws 136 through the holes 137 into threaded elements 130 in a building wall 105.

As a result of these mounting operations, the attachable section 72 of the H-shaped rail is:

- installed by its lower part in the vertical plane on the fork elements of the building 105;
- connected by its upper part in the vertical plane with the permanently installed H-shaped rail 106 on the building;
- strictly pressed by its middle part in the horizontal plane to a building wall 105.

The attachable section 72 of the H-shaped rail is a lower ending part of the permanently mounted H-shaped rail 106 on the wall and is completely identical to it. As a conclusion, the attachable section 72 of the H-shaped rail and the permanently mounted on the building H-shaped rail 106 formed a unified line of an H-shaped rail on the building wall 105.

As the elevator portion 97, and the whole attachable structure (together with the telescopic arm 99 and cabin 100) are permanently mounted on the attachable section 72 of the H-shaped rail, it becomes possible to demount of this attachable structure from the loading-unloading holding bed structure 120. For this purpose, the holes 138 of the fork elements 139 are freed of jack latches 140 of the elevator portion 97.

Then, by moving the telescopic rotating pole 119, the slots 141, which are located in the body of the elevator portion 97, are freed from fork elements 139 of the holding bed 120.

The loading-unloading holding bed 120, freed after this operation, is rolled up and placed in a transport position on the top surface 102 of the chassis 101. (The demounting operation of the elevator portion 97 and of the attachable section 72 is made by vice versa

action).

Drive structure 142, located in the body of the elevator portion 97, is activated and, in its turn, drives into action the driving cog-wheels 93 which, interacting with guiding racks 92 of the guiding slots 144, start moving the elevator portion 97 on the attachable section 72 of the H-shaped rail. Simultaneously, in the guiding slots 95, wheels 94 start moving, securing stable position of the elevator portion 97 on the H-shaped rail.

Thus, the elevator portion 97 travels from the attachable section 72 of H-shaped rail to the permanently mounted on the building H-shaped rail 106, and can now travel in both directions along the length of the H-shaped line to any high level of the building 105. Correspondingly, it becomes possible to move immediately the elevator portion 97 to that dangerous (on fire) floor level of the building 105, and to start fire-fighting operations with the help of a fire/foam pipe 146 mounted on the outside surface 112 with a barrier of the cabin 100 – as it is shown in the Fig. 27.

Simultaneously with the elevator portion 97 lifting to the dangerous level/floor, mounting of an autonomous rescue elevator 118 is started.

To ensure the possibility of such operation, first, the disconnected attachable section 72 of the H-shaped rail, is demounted. This is done in the following consequence: The telescopic rotating pole is lifted to a level approximately 45 degrees in relation to the top working surface 102 of the car chassis 101. At the moment, a holding bed mechanism 120, due to its vertical pivoting mechanism 121, is kept strictly horizontal.

Then, with the help of a horizontal rotating mechanism 122, the telescopic rotating pole 119 with the holding bed mechanism 120, is turned towards the building 105. After that, the holding bed mechanism 120, with the help of its vertical pivoting mechanism 121, is rotated 90 degrees to a strictly vertical position.

Then, the telescopic rotating pole 119 is being turned towards the building wall 105 - until the fork elements 139 are positioned closely to the slots 186, which are located in the lower part of the attachable section 72 of the H-shaped rail.

Then, with the help of the pivoting mechanism 121 and rotating mechanisms 126 and 127, the position of the holding bed mechanism 120 is being aligned until the guiding slots 186 of the attachable section 72 of the H-shaped rail are placed strictly symmetrical, on all surfaces, in relation with the fork elements 139 of the holding bed mechanism 120.

Then the telescopic rotating pole 119 is being moved until the fork elements 139 are completely placed into the guiding slots 186 of the attachable section 72 of the H-shaped rail.

Montage workers screw and take out the screws 136 from the threaded elements 130 in a building wall 105, and also, from the corner elements 135 of the guiding metallic profile 132.

After that, the attachable section 72 of the H-shaped rail is completely disconnected from a building wall 105.

With the help of the telescopic rotating pole 119, this attachable section 72 of the H-shaped rail is taken from the fork elements 125 and lowered down to the ground level-closely to the auxiliary portion 107 of the building 105 – for temporary keeping in reserve. That's because just this attachable section 72 of the H-shaped rail will be needed, later, for demounting of the elevator portion 97.

Now, it becomes possible to install, to the free area of the building wall 105, another attachable section 72 of the H-shaped rail, connected with the autonomous rescue elevator 118.

The procedure of the installation will be described below in the next embodiment description.

In other embodiment of the invention as Fig. 34 shows there is a building 191, which is on fire. In order to provide the building with fire fighting and rescue services the building is provided with rails 192 on the face of building 191. The rails 192 support elevators 193 which are operated in unison to support a corridor 194 therebetween. The corridor 194 has a large floor space for carrying a large number of people therein. The corridor 194 can be lifted or lowered to the floor needed to rescue people. People can then access the corridor 194 by using emergency doors 195 on the building, which are opposite doors 196 in the corridor 194 to admit people. People can also access the corridor 194 though doors 197 opposite windows 198 on building 191.

Alternatively people can access the top of the scaffold 199 on top of corridor 194 at any point along the face of the building. A railing 200 is provided around the scaffold 199 for safety. A ladder 201 and trap door 202 allow people to transfer from the scaffold 199 to the corridor 194. The corridor 194 can be lowered to the ground and people can then leave the corridor 194 through doors 203.

Alternatively the corridor 194 can remain in position at one floor and elevator 204 can be used to dock with the corridor and people can transfer from the corridor 194 to the elevator 204 by accessing trap door 205 on the floor of the corridor 194 and through opening 206 and stairway 207 in truss 208 and through trap door 209 on the top of elevator 204.

The corridor 194 extends between the two elevators 193 on either side of the building 191 in the embodiment shown, however there can be three or more elevators if the face of the building is longer with corridors between all the elevators.

The elevators 193 also have a corner corridor portion 210 extending to the corner of the building such that two such corner corridor portions 210 on adjacent corners of the building 191 will meet at a 45 degree angle to form adjacent walls 211 with sliding doors 212 so that people

can escape around the corner of a building. Assuming there is a fire blocking passage of a corridor 194 the corridor 194 can be parked at a floor to rescue people who can then move to an adjacent corridor 194 around the corner through corner corridor portions 210. People can also use the scaffold 199 on top of the corridor 194 and on top of the corner corridor portion 210 to be transported to safety or can transfer to the adjacent scaffold 199 by passing through gates 213. The people can then ride down to safety in the second corridor 194 or on the second scaffold 199 or reenter the building on a side away from the fire and use internal building stairs to escape the building.

The corridors 194 and corner corridor portions 210 can have inside and outside fireproof walls, and a fireproof ceiling and floor to protect the people inside. Refractory glass windows 214 in the corridors 194 help protect the passengers while letting them see out of the corridor 194 and let light into the corridor 194. The corridors 194 are supported by trusses 208 for a light weight strong structure. The trusses 208 have rotating connection units 215 for pivotally attaching the truss to the elevator 193. The connections of the corridor 194 to the elevator 193 have moving metallic bridges 216 and corrugated elastic sheaths 217 to bridge the gap between the corridor 194 and the elevator 193. An elastic fence section 200 connects railing 200 to the upper portion 220 of elevator 193. Doors 218 with windows 214 in elevator 193 can be opened to allow people access to the corridor 194 or the corner corridor portions 210 from the elevator.

The lower portion 219 of elevator 193 is the passenger cabin the upper portion 220 holds fire suppressing foam 221 and batteries 232 (accumulator) for powering lights 223 (for illumination, for equipment of management, for sliding doors and etc.) and supplying power at jacks 225 are used to run equipment such as controls 224. Hose connections 226 are for connecting a hose for spraying fire suppressant foam from containers 221 on the fire.

The building 191 has rails 192 attached to the outside face. The rails 192 are preferably recessed into a groove 227 in the building surface fro protection against the elements and are H shaped. The rails 192 have guide slots 228 for receiving thrust wheels 229 on the elevator, which stabilize the elevator on the rails 192. The rails 192 have teeth 230 for engaging cogwheels 231, turned by drive units 232, which are preferably electric motors. The drive units 232 raise lower or stop the elevators 193, 233 and 204.

The rails 192 have heat resistant sections 234 at intervals to absorb changes in the length of the rails due to thermal expansion or contraction. The corridors 194 with the scaffolding 199 on top can be used to carry firemen and their equipment to the floors needed to fight the fire. The fire can also be fought from the scaffold 199 or the corridor 194. The elevators 193 with the corridors 210 therebetween can be stored at the top of the building 191 in hangers 235 to hide them from view, or they can be stored on the ground, underground, or anyplace along the face of

the building.

The fire can be fought by use of elevator 233 having a crane 236 thereon. The crane supports and moves a pod 237 which can be used for rescuing people and transporting them to either a safe place on the building, the corridor 194 or scaffold 199, elevator 204 or the ground. The pod 237 can also be used to fight the fire by use of nozzle 237 used for spraying water or fire represent chemicals or foam on the fire. The pod 237 can also be used during construction or building maintenance to access points on the face of the building or the roof. The pod 237 in the embodiments shown is supported by the crane 236 from above such that the pod can be set on the roof of the building 191 on the ground on the scaffolding 199 or on top of elevator 204.

Elevator 204 can be used to transport people from any floor of the building 191 to the ground or to bring fire fighters, workers or equipment to floors where needed. Elevators 233 and 204 have the same wheels 229 and cogwheels 231 and drive units 232 as elevators 193 to raise and lower themselves on rails 192. Elevator 233 can be stored underground at a first level 238 below the ground such as in the building garage. A ladder 239 or other structure can be used to service the elevator 233 or the crane 236 when stored at first level 238. Elevator 204 can be stored underground at second level 240 and have a ladder 239 or other structure used for servicing elevator 204.

When any of the elevators 193, 233, 204 are stored underground level the elevators may have a fence 241 around the opening or vertical slot 242 in the ground adjacent the building for safety. Alternatively a sliding roof 243 may be used to store the elevators underground and out of the elements.

If the corridor 194 is positioned at ground level a stair 244 or other structure may be used for maintenance or to provide access the scaffold 199.

The elevators 193, 233 and 204 may be attached to the building on the same rails 192 in any order, or they may be on separate rails to allow for the elevators 233, 204 to pass one another.

In case of a fire or other emergency the corridor 194 can be lowered from the top and the elevators 233 and 204 can be raised to rescue people or deliver firefighters rescue workers and equipment to anyplace on the outside face of the building. With proper positioning and coordinated use of the corridors 194 with scaffolds 199, the elevator 204 and the elevator 233 with a crane 236 and pod 237. Fires can be put out and people rescued in an efficient manner while outside of the zone of the danger inside of the building. The same corridors 194, scaffold 199, elevator 204 and elevator 233 with crane 236 and pod 237 can be used for building construction and maintenance such as window washing. The corridor 194 may be used alone or in conjunction with elevators 233 and 204.

Obviously, many modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

Claims

1. An elevator system attached to the outside of a building comprising an elevator portion having a rail engaging portion for moving the elevator portion vertically on a rail attached to a structure, a crane portion has a rotating mechanism and a pivoting mechanism for supporting one end of an arm, the arm comprises a telescopic arm for reaching any position on or above a building.

2. The elevator system as in claim 1 further comprising:

a functional compartment provided in a building;

a sliding frame is mounted in the compartment, connected with jack mechanisms helping the sliding frame move beyond the outer limits of the building and back and;

supporting wheels interconnected with guiders in the surfaces of the functional compartment for smooth and safe sliding of the frame.

3. The elevator system as in claim 2, further comprising:

a receiving panel provided in the front part of the functional compartment, with "pocket" guiders on the right and left sides of the panel.

4. The elevator system as in claim 3, wherein:

the rail has H-shaped cross-section;

an attachable section of the rail providing connectable with the receiving panel;

the attachable section of the rail equipped with a mounting panel of the same square configuration as of the receiving panel;

a thickness of the mounting panel being less than a clearance between mounted "pocket" guiders and the outer surface of the receiving panel for ensuring their connection.

5. The elevator system as in claim 4, wherein:

the receiving panel equipped with beveled guiding sides, the mounting panel equipped with lower rounded corners.

6. The elevator system as in claim 2, wherein lower part of the functional compartment provided with a concrete basis.

7. The elevator system as in claim 1, further comprising an auxiliary portion supplied

with a movable ladder.

8. The elevator system as in claim 1, further comprising a cabin and
an attachable frame with round mechanical brushes;
a profile with holes for fluid sprayers;
air routes, provided on the back surface of the cabin.

9. The elevator system as in claim 8, wherein the attachable frame supplied with fixing handles.

10. An elevator system attached to the outside of a building comprising:
an elevator portion having a rail engaging portion for moving the elevator portion vertically on a rail attached to a building structure;
a crane portion attached to the elevator portion for positioning a platform adjacent the structure.

11. The elevator system as in claim 10, further comprising a telescopic arm consisting of two parts interconnected with a pivoting mechanism attached at its end to a cramp by a vertical rotating mechanism.

12. The elevator system as in claim 11, wherein the cramp is pivoted to an outside platform supplied with a barrier.

13. The elevator system as in claim 10, further comprising a cabin capable to make a full rotation around it vertical axis, the cabin is hanged onto the outside platform.

14. The elevator system as in claim 10, wherein the elevator portion is provided with a passenger compartment with sliding doors, and a vertical aperture with a staircase, consisting of two parts:
- an elevator portion and
- an autonomous rescue elevator, leading to an autonomous rescue elevator.

15. The elevator system as in claim 10, wherein elastic elements are provided on lower contact surfaces of the elevator portion and on the autonomous rescue elevator supplied with

supporting elements.

16. The elevator system as in claim 15, wherein the elevator portion and the autonomous rescue elevator are provided with compartments for keeping anti-fire foam, liquids, hoses and other auxiliary equipment.

17. The elevator system as in claim 14, wherein the passenger compartment is supplied with an additional control panel.

18. The elevator system as in claim 14, wherein the rail having H-shaped cross section is supplied with guiding slots.

19. The elevator system as in claim 10, wherein, the rail engaging portion has moveable wheels such that they can engage the rail when desired.

20. The elevator system as in claim 10, wherein the rail engaging portion has pivotal arms supporting wheels having tires such that the tires can engage the rail when desired.

21. The elevator system as in claim 10, wherein: the crane portion has a rotating mechanism and a pivoting mechanism for supporting one end of an arm further comprising a pivot mechanism attached to the arm at a second end and the platform attached to the pivot mechanism at a second end of the arm.

22. The elevator system as in claim 20, wherein the arm comprises a telescoping arm.

23. The elevator system as in claim 20, wherein the platform comprises a cabin.

24. The elevator system as in claim 23, further comprising a means for fire fighting.

25. The elevator system as in claim 24, wherein the cabin is fireproof.

26. The elevator system as in claim 10, further comprising an emergency brake attached to the elevator portion for stopping the elevator from descending in an emergency.

27. The elevator system as in claim 10, further comprising a transport vehicle having an elevator portion delivery and retrieval mechanism to hold the elevator portion adjacent the rail for attachment to or release therefrom.

28. The elevator system as in claim 27, wherein the elevator portion delivery and retrieval mechanism has a rotating mechanism attached to the transport vehicle, a pivoting mechanism attached to the rotating mechanism, a telescoping pole, and a second pivoting mechanism attached between the telescoping pole the elevator portion such that the elevator portion can be positioned adjacent the rail.

29. The elevator system as in claim 23, further comprising doors on the side of the cabin.

30. The elevator system as in claim 10, further comprising a cable connected to the elevator raises and lowers the elevator on the rail.

31. The elevator system as in claim 10, further comprising a motor in the elevator powers wheels engaging the rail for raising and lowering the elevator.

32. The elevator system as in claim 23, wherein, the cabin supports fire fighting equipment.

33. The elevator system as in claim 23, wherein, the cabin has a capacity to transport people from the building to rescue them from fires.

34. The elevator system as in claim 10, wherein, the rail engaging portion has pivoting arms having wheels attached which engage the rails.

35. An elevator rail for an elevator system attached to the outside of a building, wherein the rail is an H shaped rail with:

a first face, a second face and a cross portion therebetween;

a channel in the first face forming at least one trolley guide and

at least one guide channel on the first face for guiding elevator wheels on the first face.

36. An elevator rail as in claim 35, further comprising at least one light channel on the rail for providing lights.

37. An elevator rail as in claim 35, further comprising expansion joints between sections of the rail attached to the face of a building.

38. An elevator rail as in claim 35, further comprising a rough surface on the rail for engaging tires of an elevator.

39. An elevator rail as in claim 35, further comprising apertures in the at least one guide channel to engage a cog wheel on the elevator.

40. An elevator rail as in claim 35, further comprising an elevator cab with wheels and tires for engaging the H shaped beam and guiding the elevator cab on the rail.

41. An elevator rail as in claim 35, further comprising at least one trolley in the at least one trolley guide, the trolley connected to an elevator for raising or lowering the elevator on the rail.

42. An elevator rail as in claim 35, further comprising at least one light channel on the second surface for power cables.

43. An elevator rail for an elevator system attached to the outside of a building as in claim 10 having,

teeth on the rail for engaging a cog wheel on the elevator for raising and lowering the elevator on the rail,

at least one guide wheel on the elevator for engaging the rail such that the elevator runs on the rail.

44. An elevator rail as in claim 43 wherein,

a rail section having the elevator thereon for connection to the building and to the rail section on the building to deliver the elevator to the building.

45. An elevator rail as in claim 44 having, a motor in the elevator for driving the cog

wheel.

46. An elevator rail as in claim 45 wherein,

a transport vehicle having a rail section with an elevator thereon and a means for moving the rail section and elevator adjacent the building and attaching the rail section to the building to join the rail section with the elevator thereon to the rail section on the building such that the elevator travels on the combined rail up and down the length of the building.

47. An elevator rail for an elevator system attached to the outside of a building wherein the rail is an H shaped rail with a first face, a second face and a cross portion therebetween, further comprising:

a channel in the first face forming at least one trolley guide,

at least one guide channel on the first face for guiding elevator wheels on the first face.

48. An elevator rail as in claim 47, further comprising at least one light channel on the rail for providing lights.

49. An elevator rail as in claim 47 further comprising expansion joints between sections of rail attached to the face of a building.

50. An elevator rail as in claim 47, further comprising a rough surface on the rail for engaging tires of an elevator.

51. An elevator rail as in claim 47, further comprising apertures in the at least one guide channel to engage a cog wheel on the elevator.

52. An elevator rail for an elevator system attached to the outside of a building as in claim 47 having an elevator cab with wheels and tires for engaging the H shaped beam and guiding the elevator cab on the rail.

53. An elevator rail as in claim 47, further comprising at least one trolley in the at least one trolley guide, the trolley connected to an elevator for raising or lowering the elevator on the rail.

54. An elevator rail as in claim 47, further comprising at least one light channel on the second surface for power cables.

55. A vertically mobile platform for the face of a building comprising:
a pair of rails attached to the face of a building,
an elevator on each rail,
a platform extending between the elevators for riding up and down the face of the building when the elevators travel up and down the face of the building in unison.

56. A vertically mobile platform as in claim 55, wherein each elevator has a cog wheel driven by an electric motor for engaging a toothed portion of the rail for raising and lowering the elevator.

57. A vertically mobile platform as in claim 55, wherein the platform is pivotally connected to each elevator.

58. A vertically mobile platform as in claim 55, wherein the platform supports a corridor.

59. A vertically mobile platform as in claim 58, further comprising a scaffold on top of the corridor.

60. A vertically mobile platform as in claim 58, further comprising a corner corridor portion attached to the elevator for connecting to other corner corridor portions at the corners of the building.

61. A vertically mobile platform as in claim 55, further comprising a second elevator running on at least one of the rails.

62. A vertically mobile platform as in claim 55 further comprising an elevator with a crane running on at least one of the rails.

63. A vertically mobile platform as in claim 58, further comprising a fireproof insulated wall on the corridor facing the building to protect the inside of the corridors.

64. A vertically mobile platform as in claim 64, further comprising a fireproof insulated floor and roof on the corridor to protect the inside of the corridors.

65. A vertically mobile platform as in claim 58, further comprising a truss for supporting the platform.

66. A vertically mobile platform as in claim 58, further comprising doors on the corridor provides access from the corridor to the building.

67. A method for accessing the face of a building comprising:
attaching a pair of spaced rails to the face of a building;
attaching an elevator to each of the rails;
attaching a platform between the elevators;
running the elevators on the rails up and down the face of the building in unison to lift and lower the platform to the desired position to gain access to the surface of the building.

68. A method for accessing the face of a building as in claim 67, further comprising attaching a second elevator to at least one of the rails to run up and down on the rail for accessing the face of the building and the elevator and platform.

69. A method for accessing the face of a building as in claim 67, further comprising attaching an elevator having a crane to at least one of the rails, to run up and down on the ail for accessing the face of the building, the elevator and platform and the second elevator.

70. A method for accessing the face of a building as in claim 69, further comprising attaching a pod to the crane to accessing at least one of the building, the elevator, the platform and the second elevator.

71. A method for accessing the face of a building as in claim 67, further comprising incorporating a corridor on the platform to protect those on the platform.

72. A method for accessing the face of a building as in claim 67, further comprising incorporating a scaffold on the corridor to easily access the face of the building.

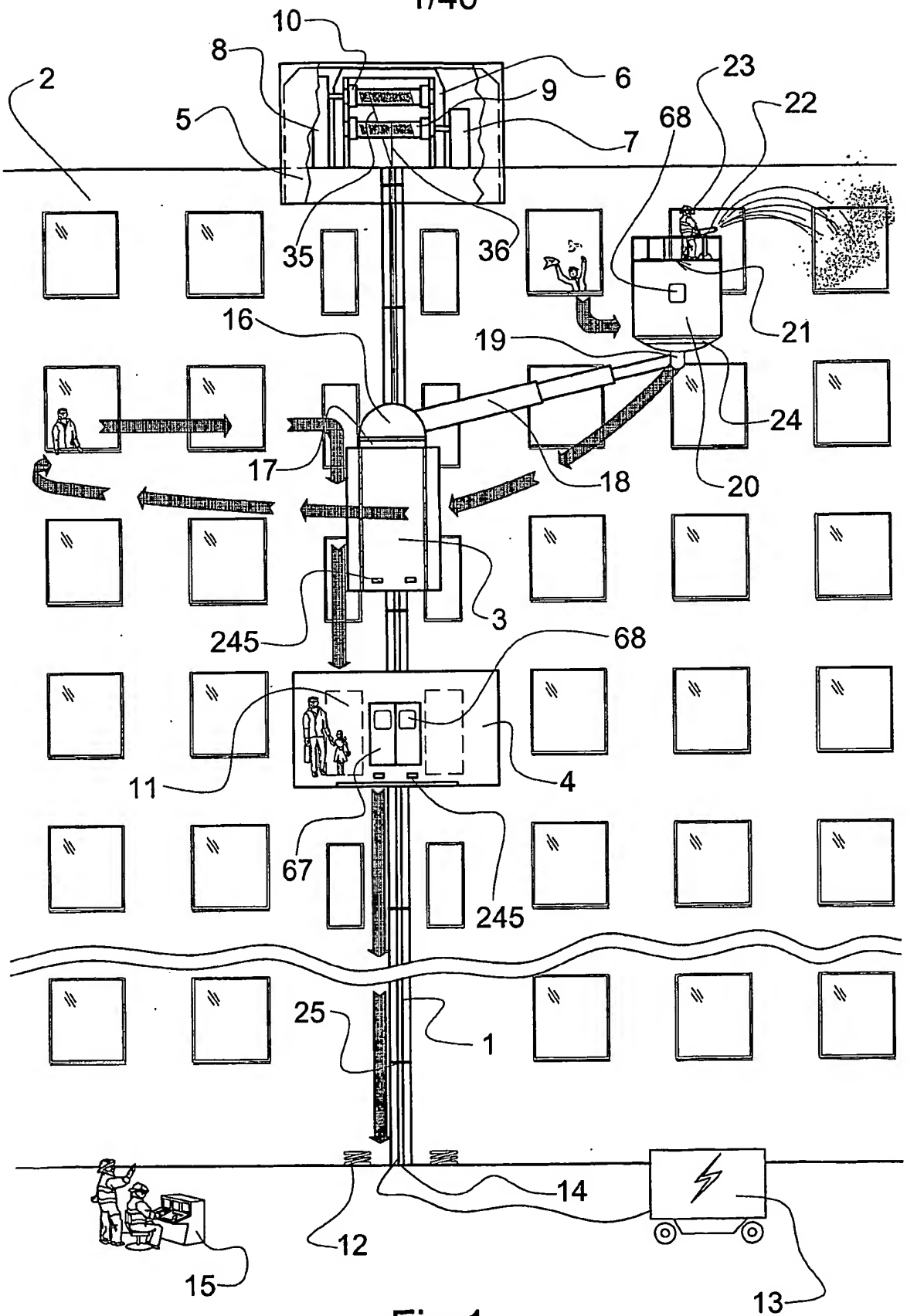
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Fig.1

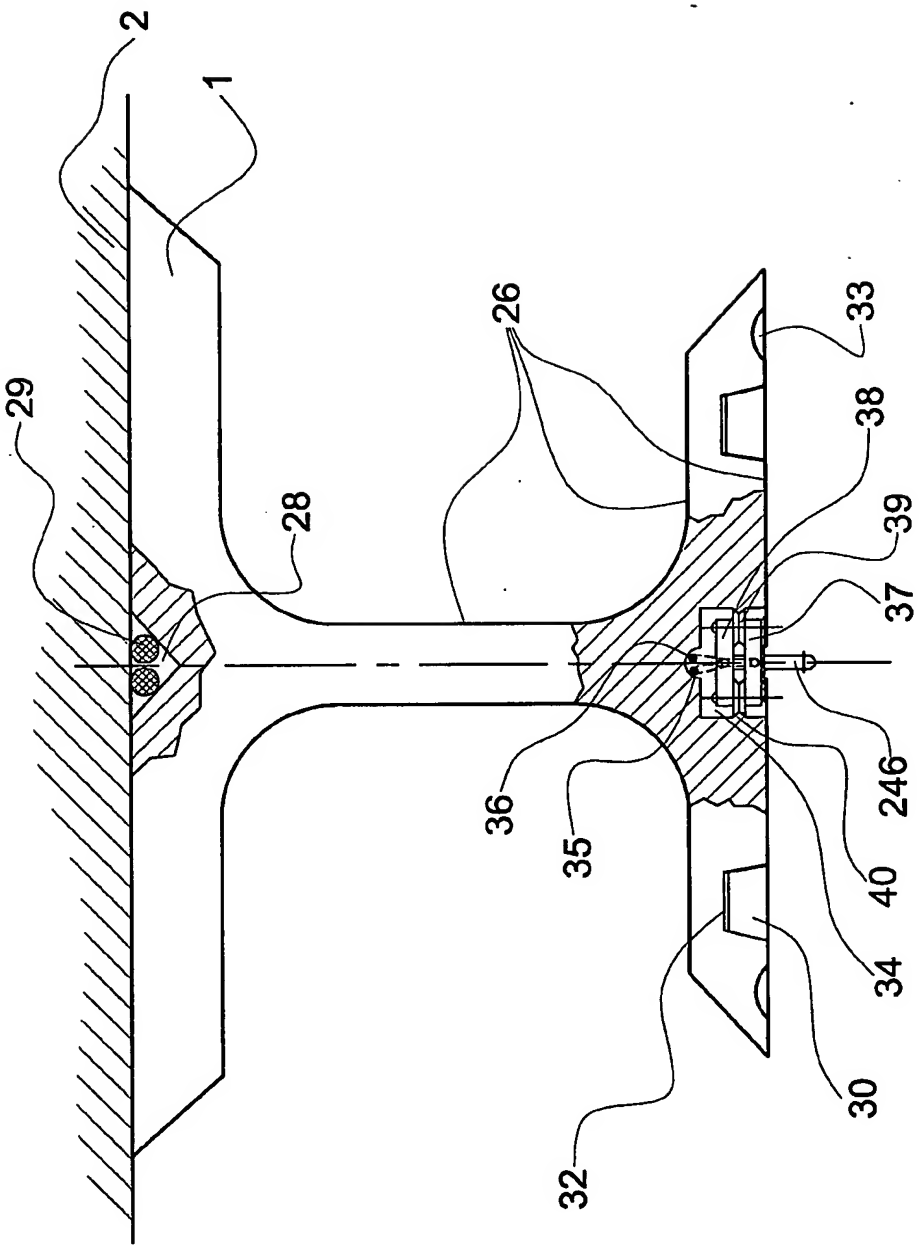

Fig.2

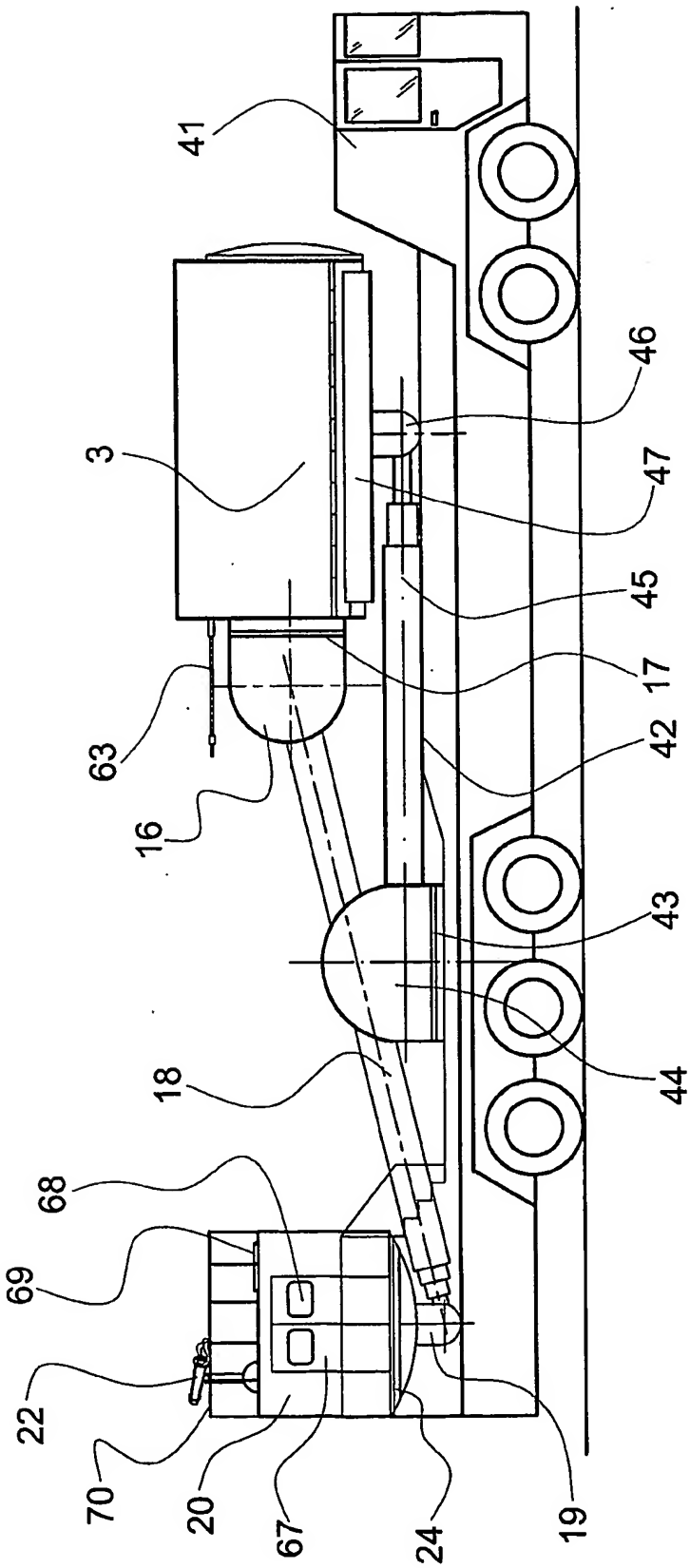

Fig.3

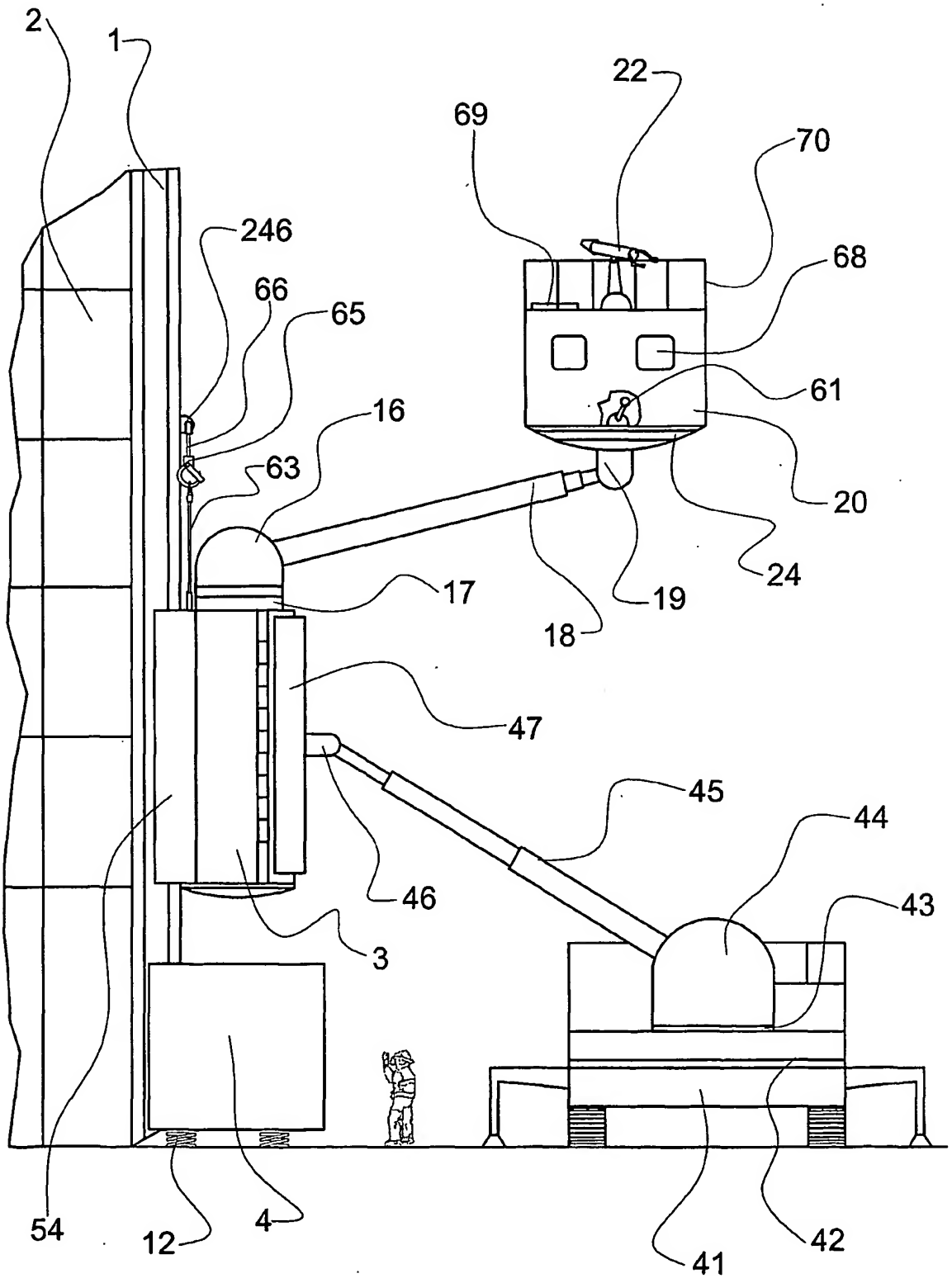
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Fig.4

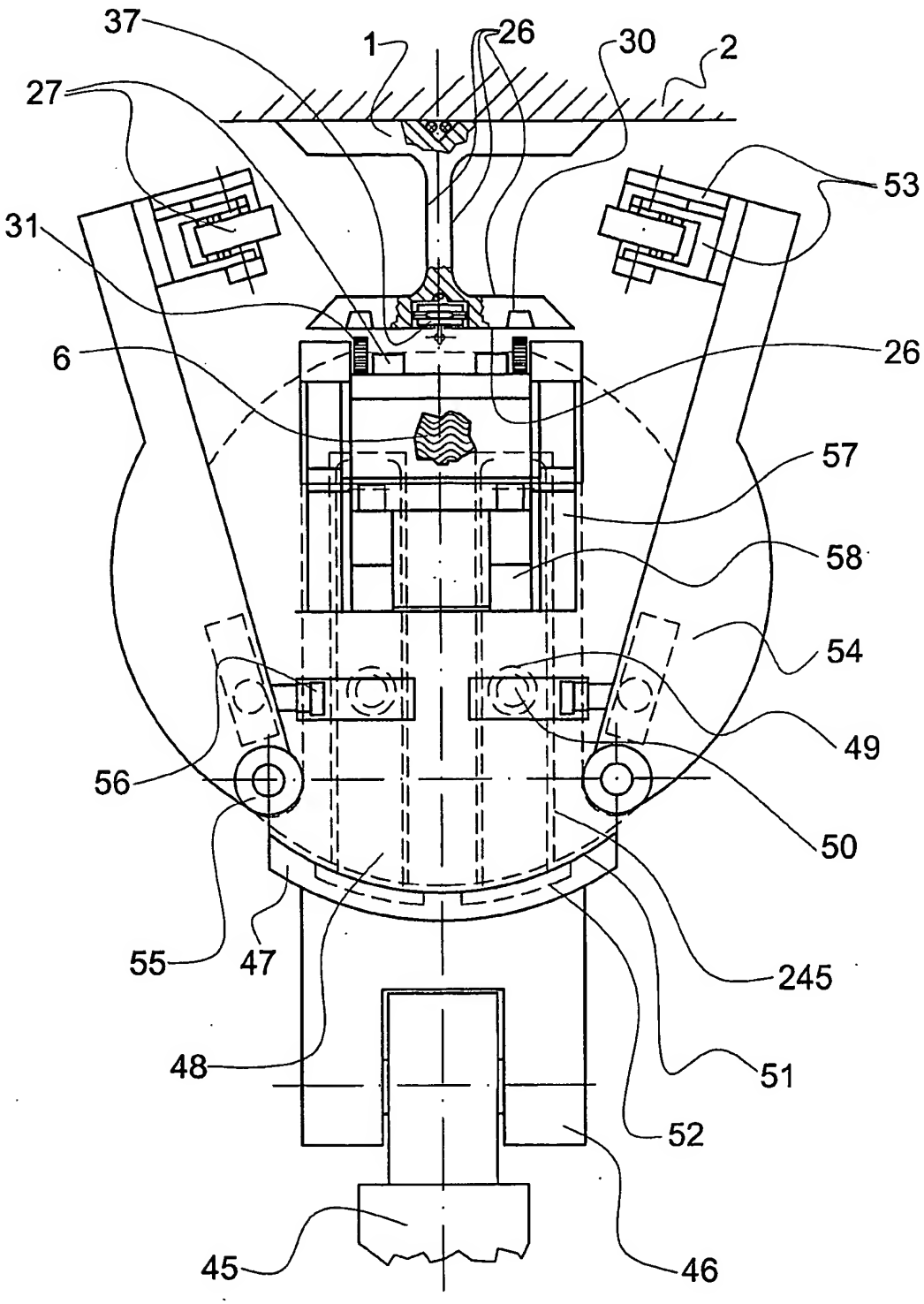

Fig.5

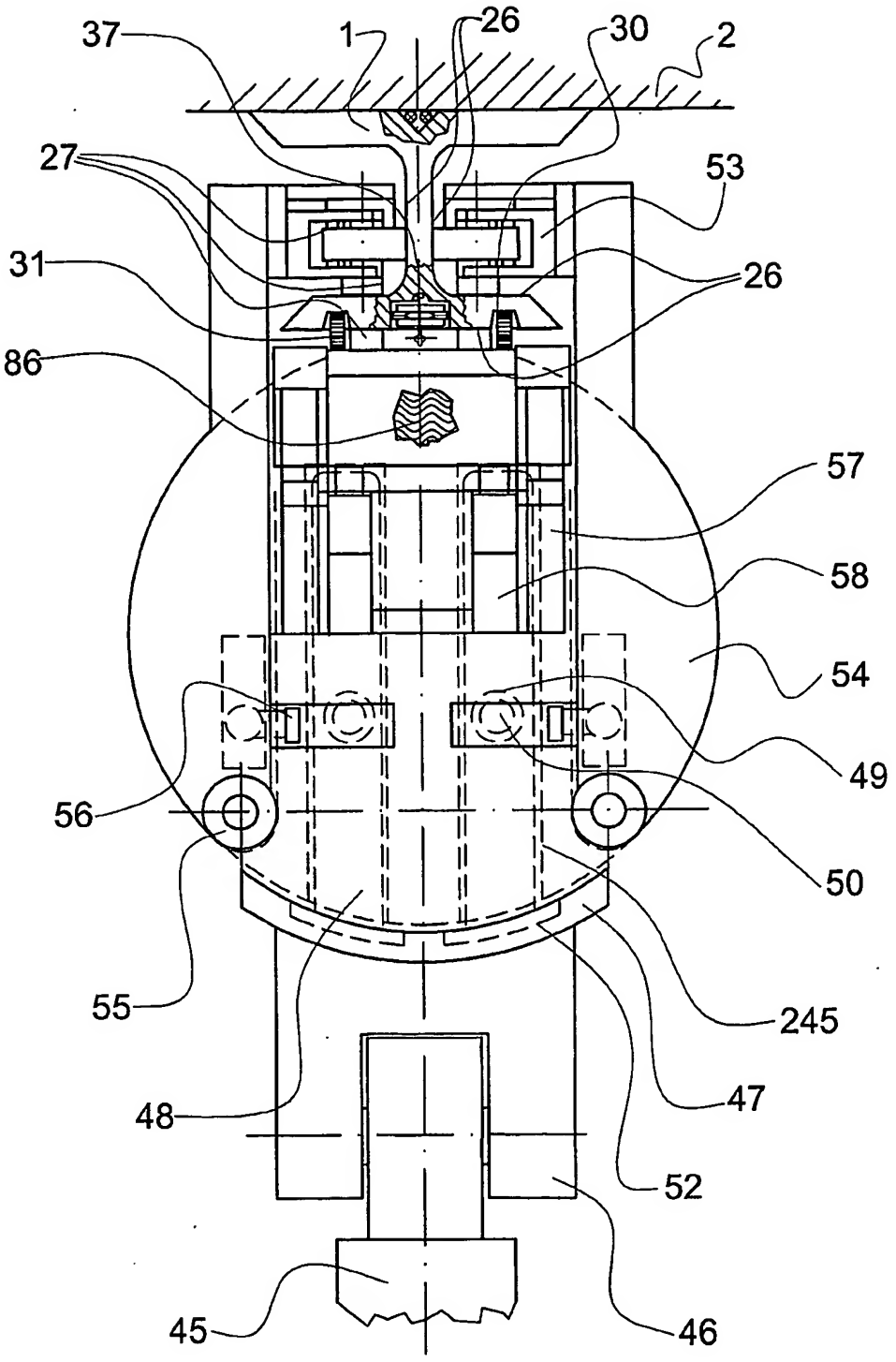

Fig.6

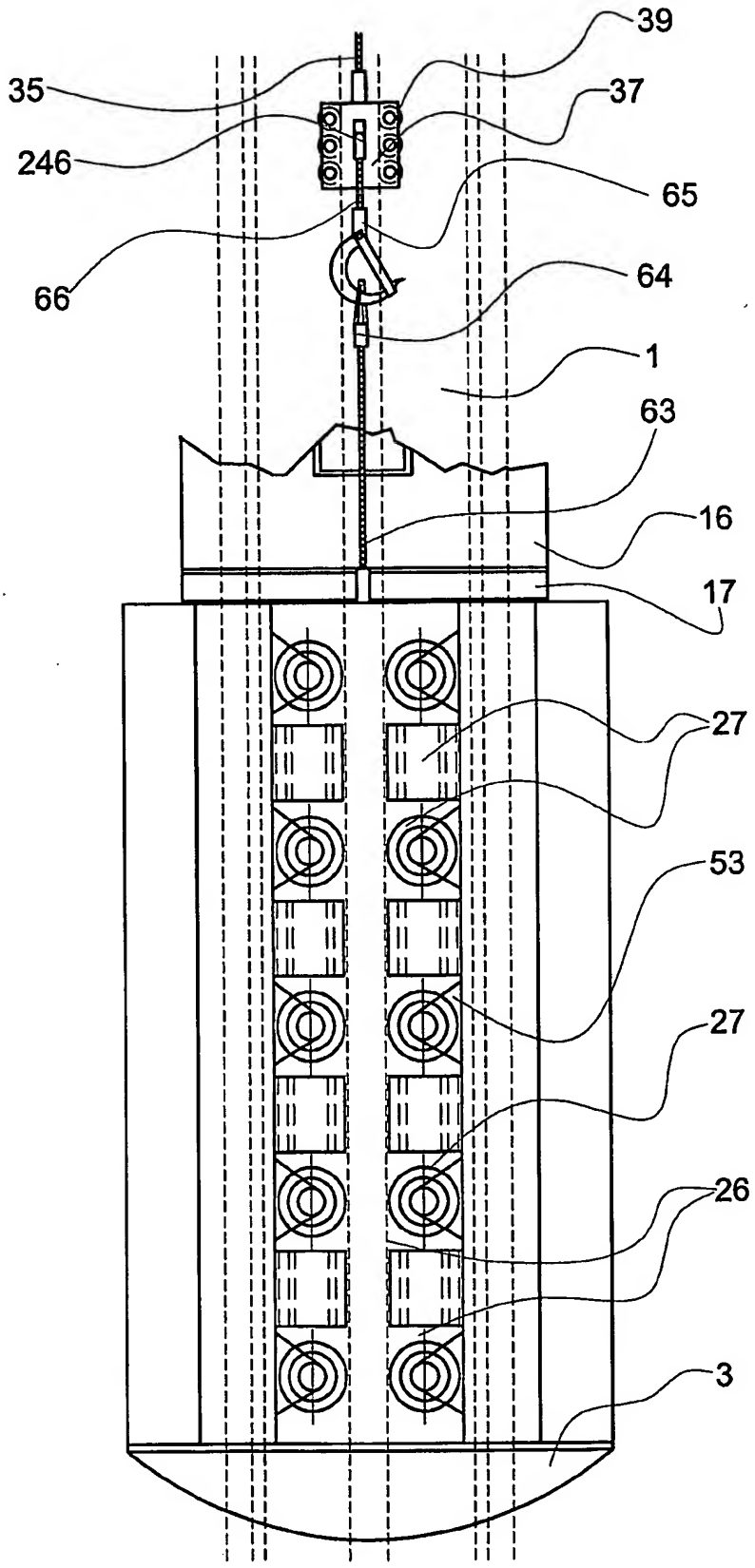

Fig.7

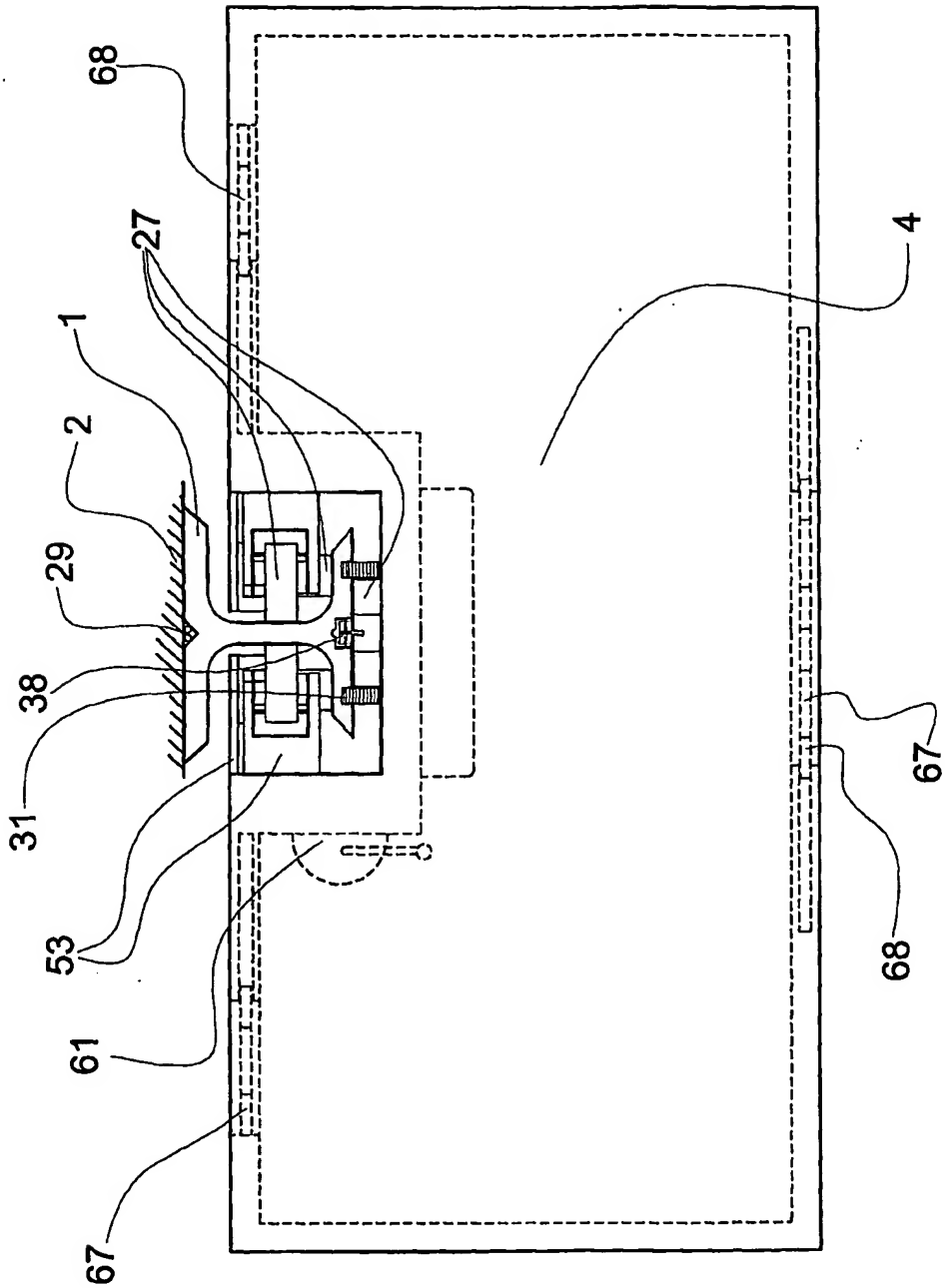

Fig.8

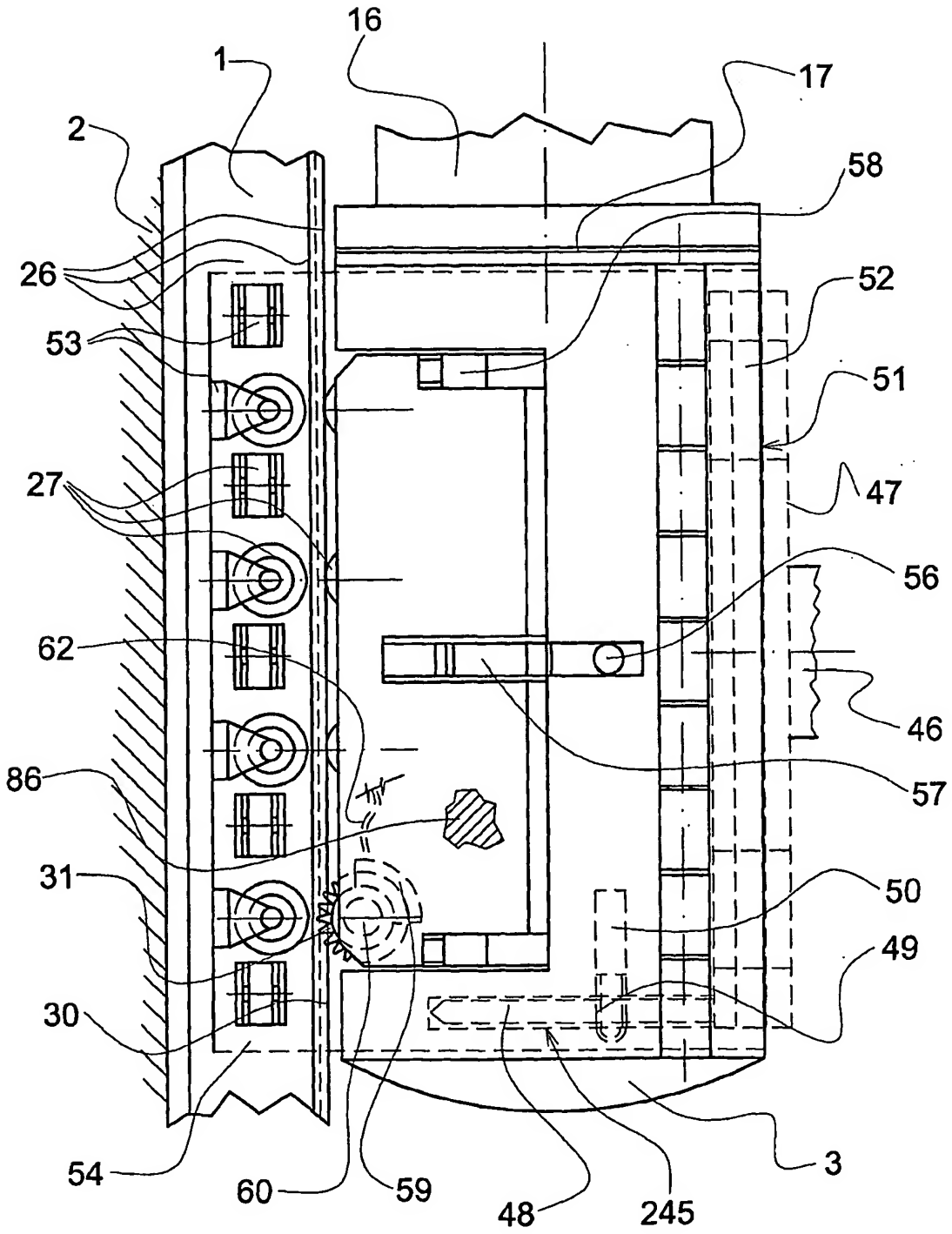
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Fig.9

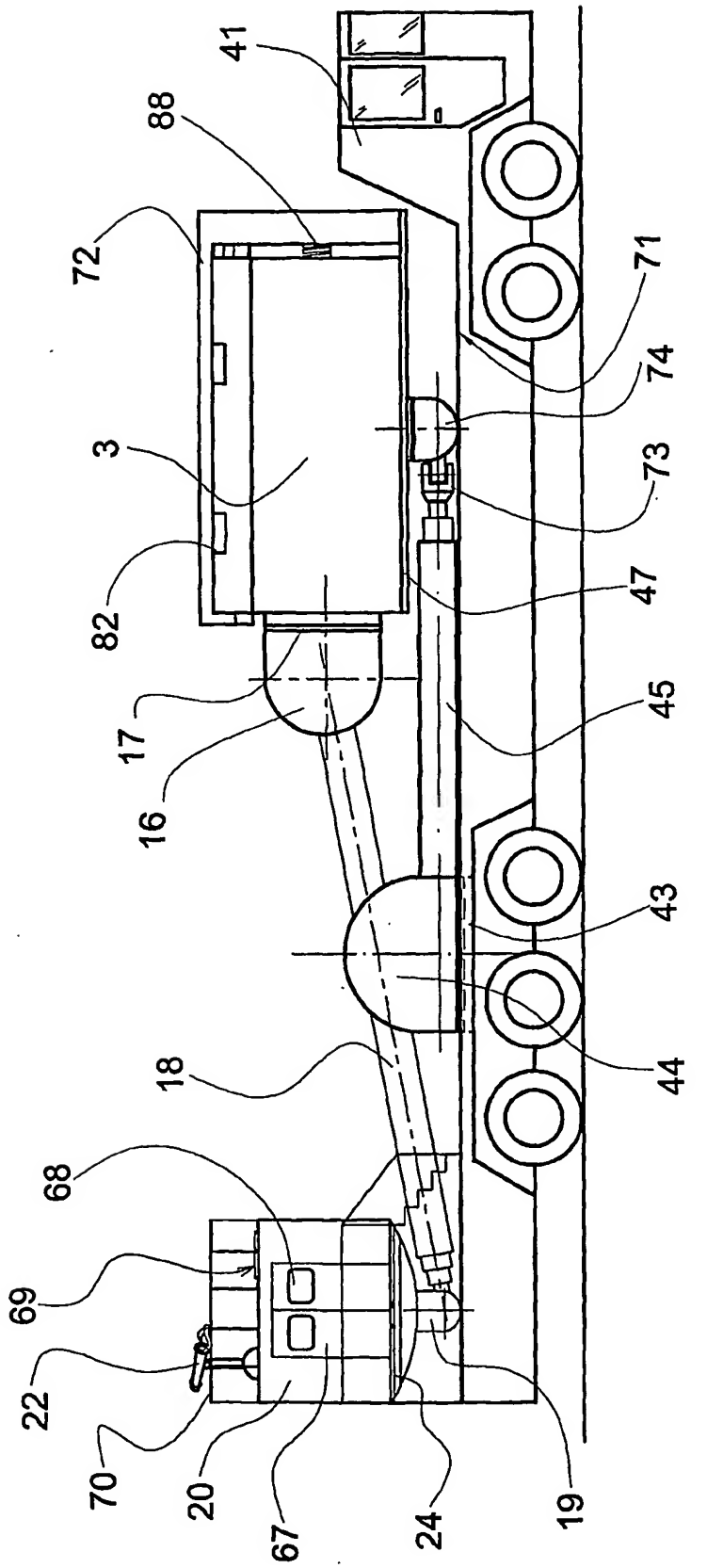

Fig.10

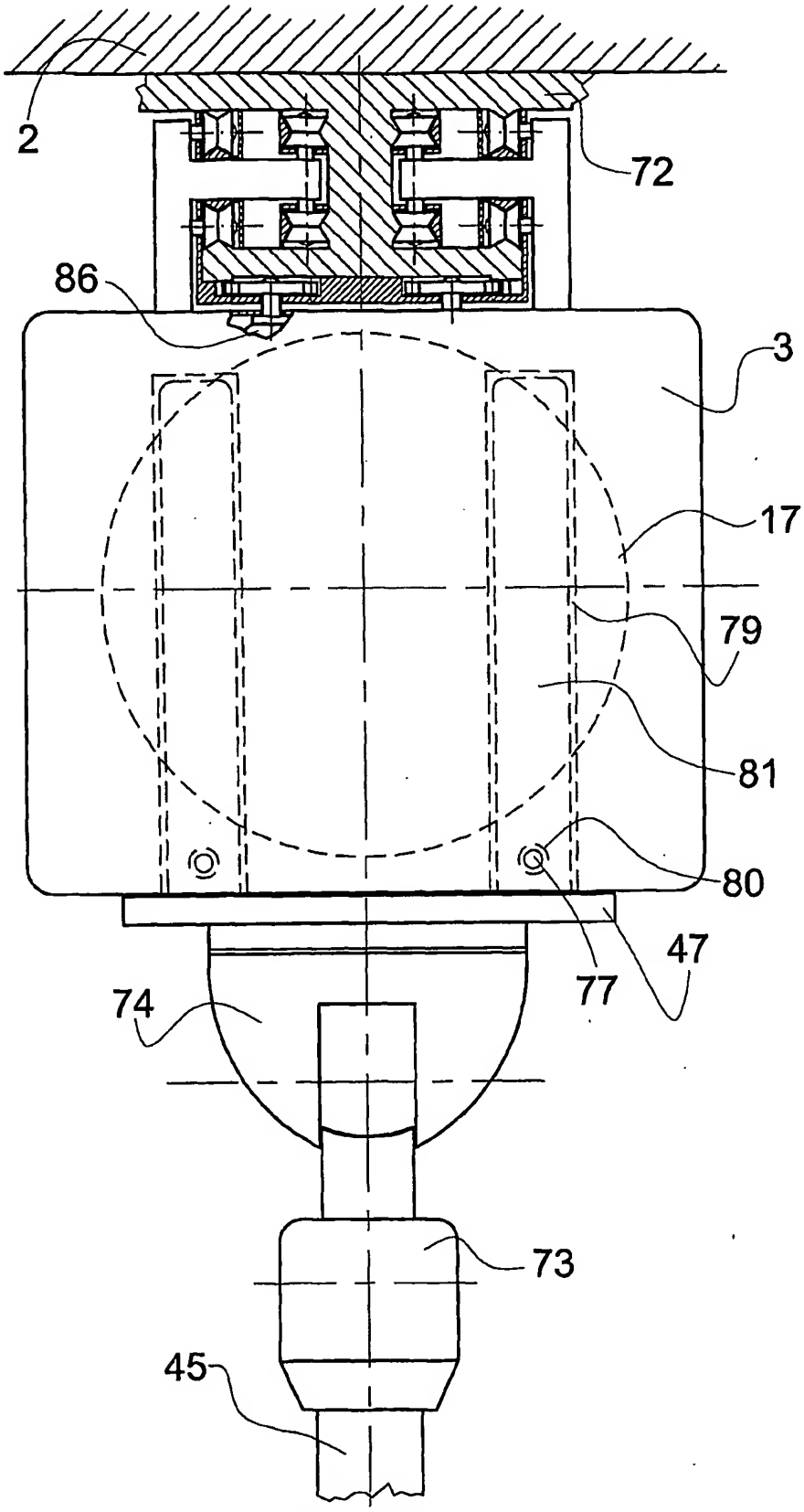

Fig.11

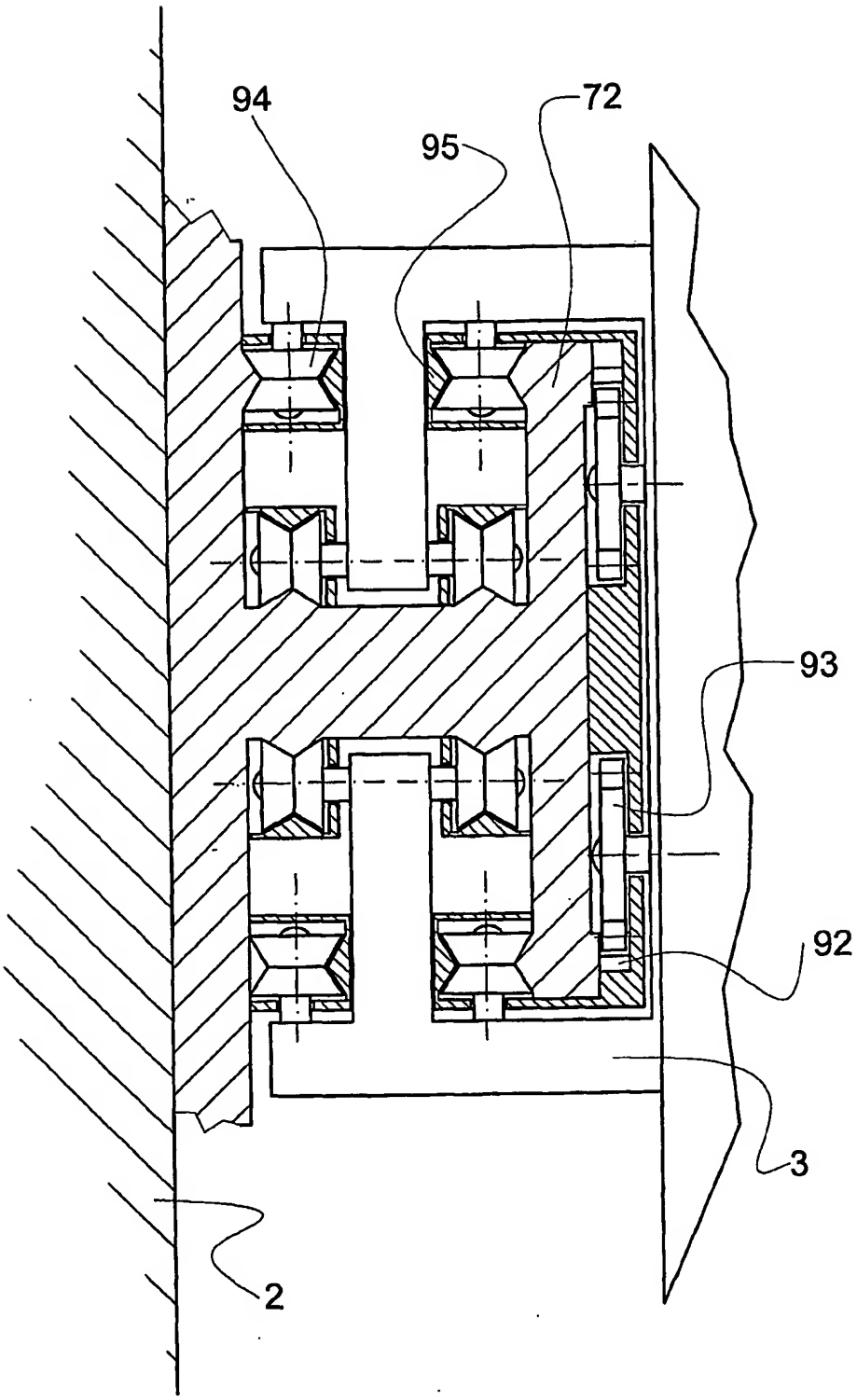

Fig.12

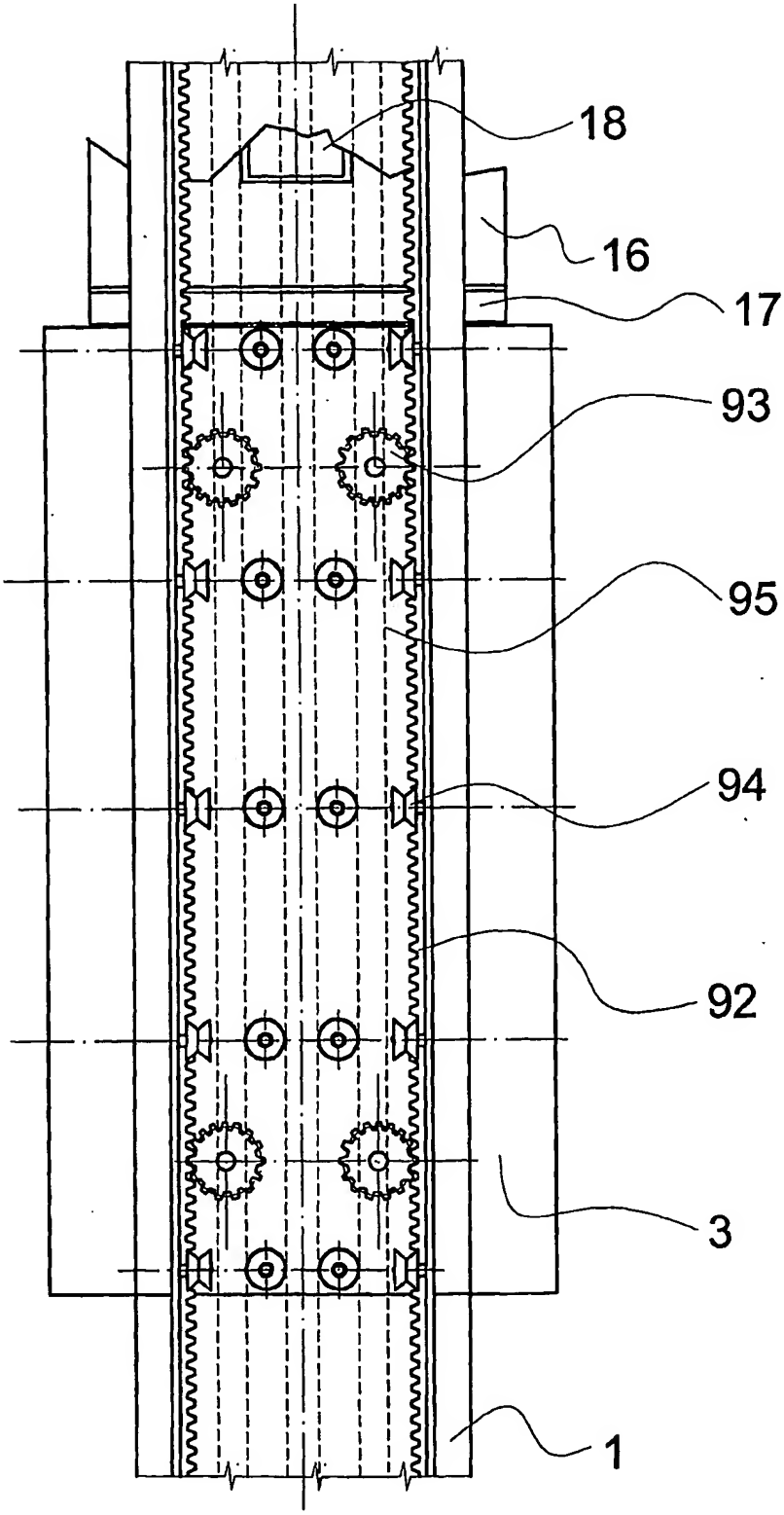

Fig.13

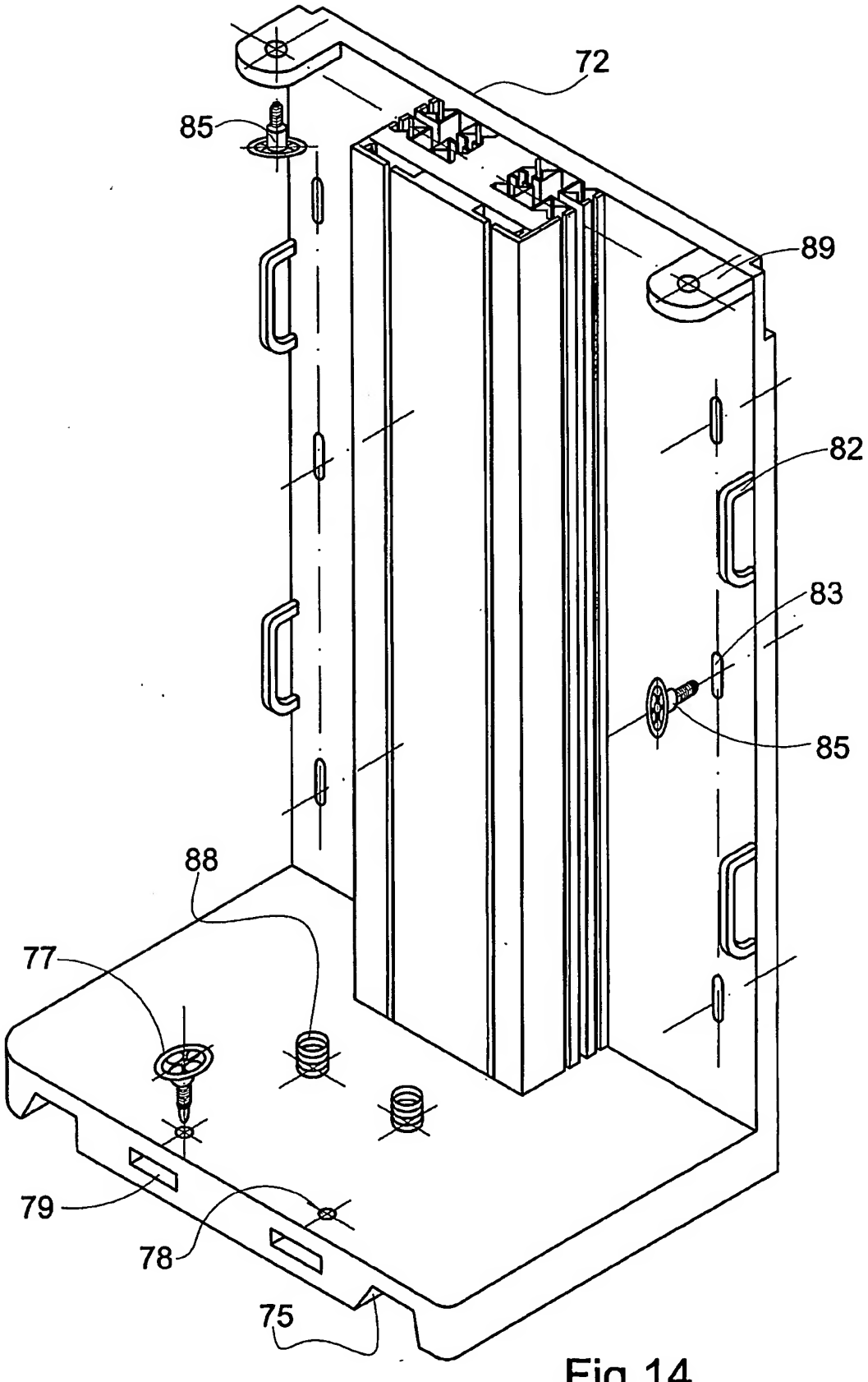

Fig.14

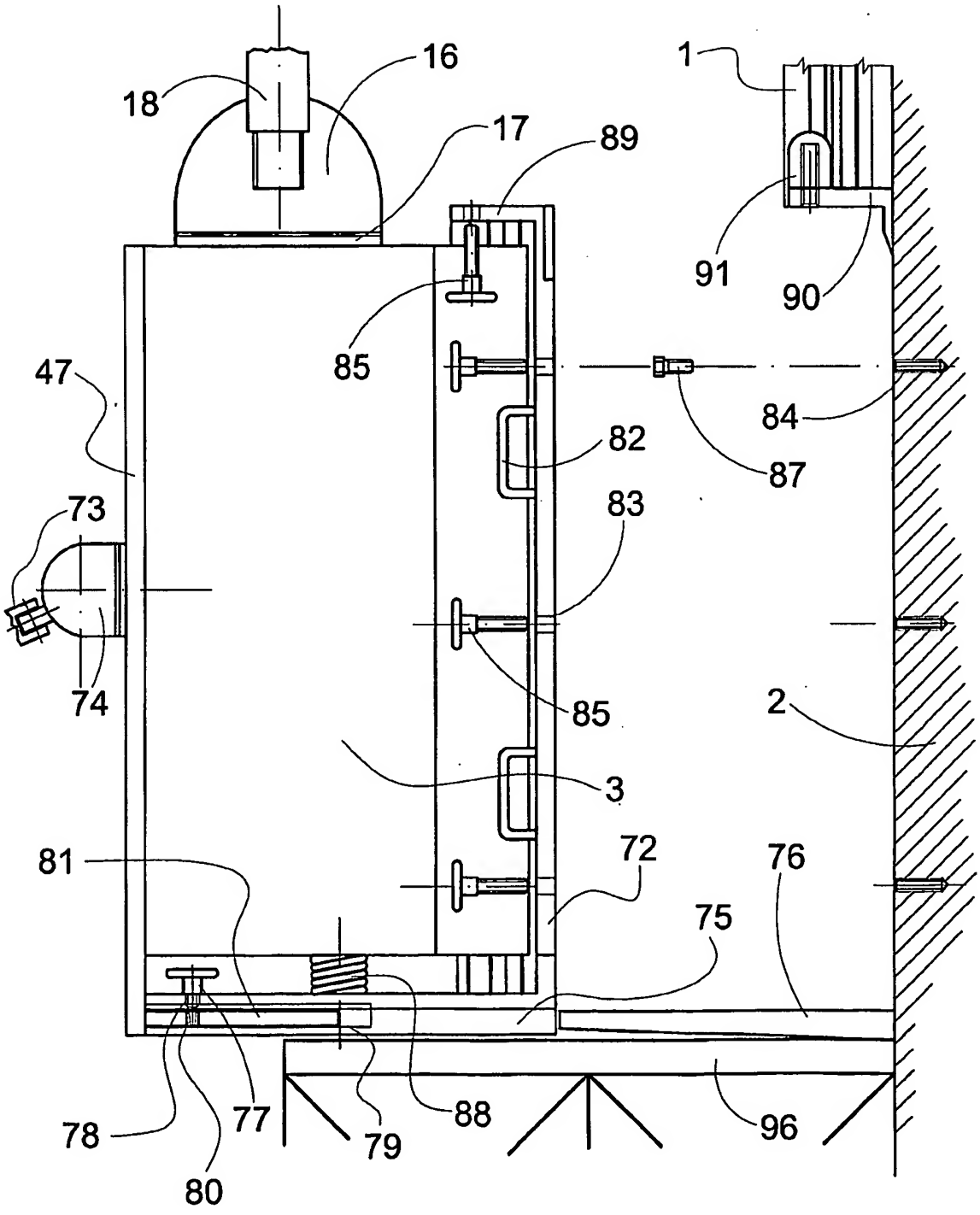
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Fig.15

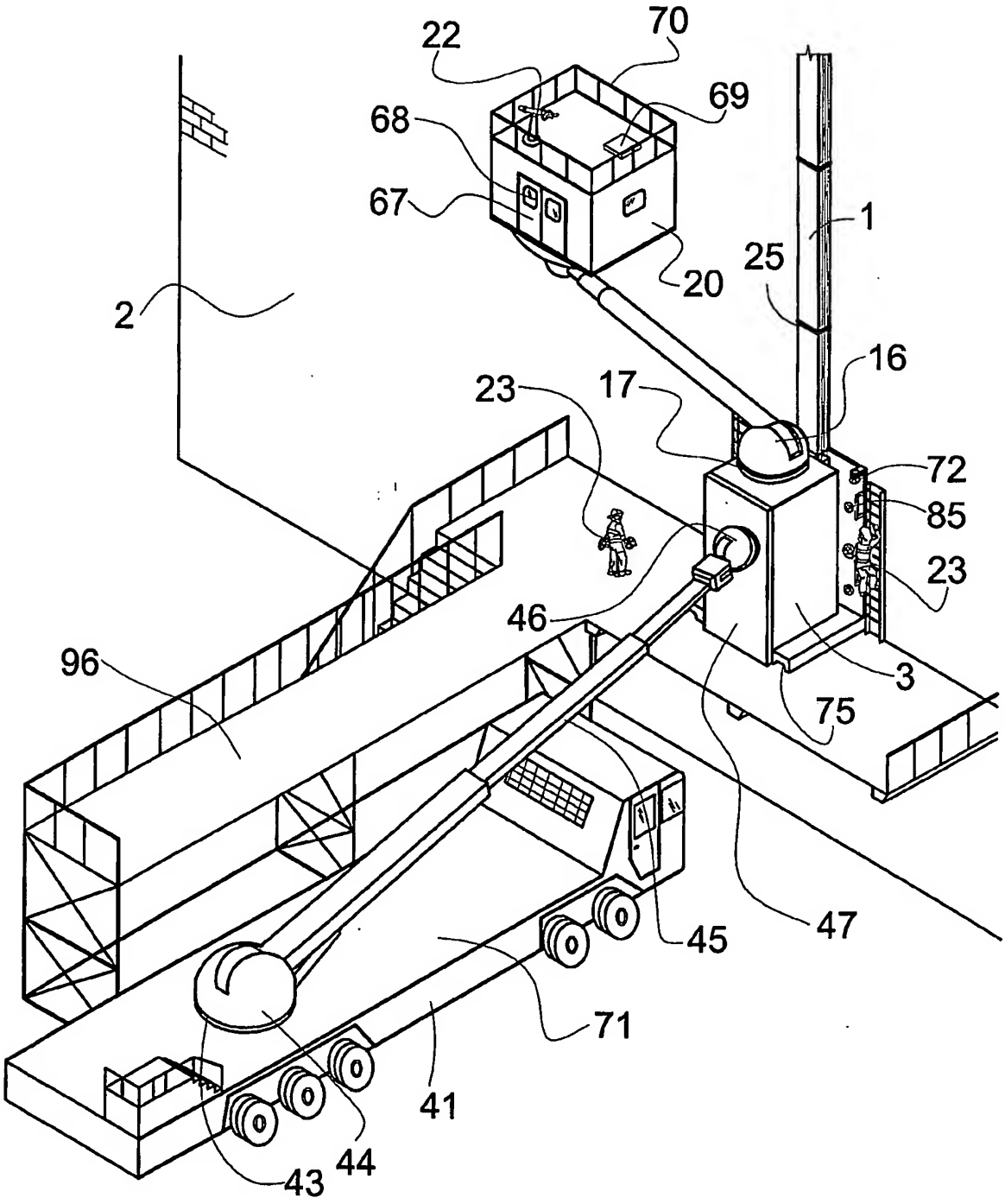

Fig.16

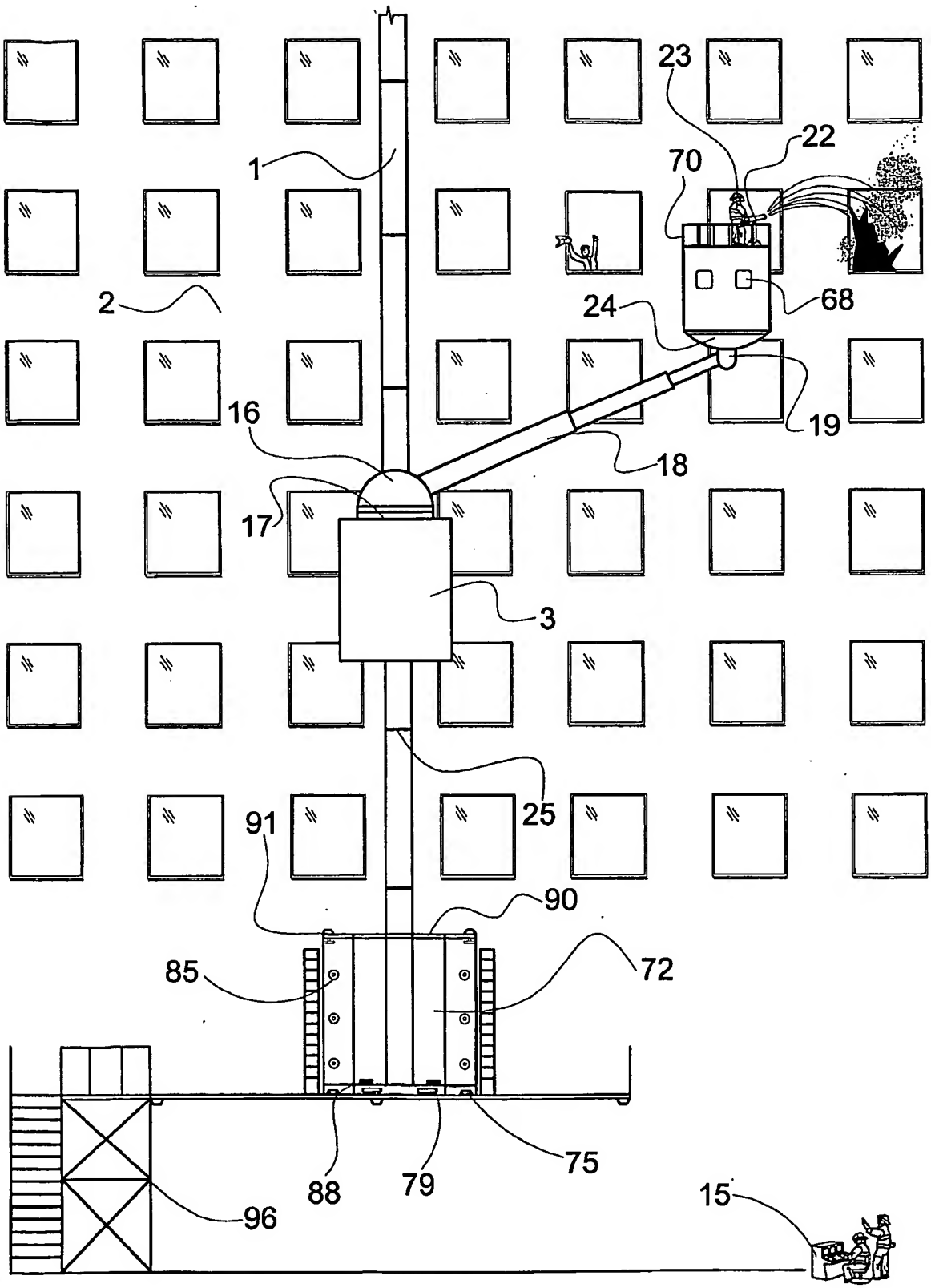

Fig.17

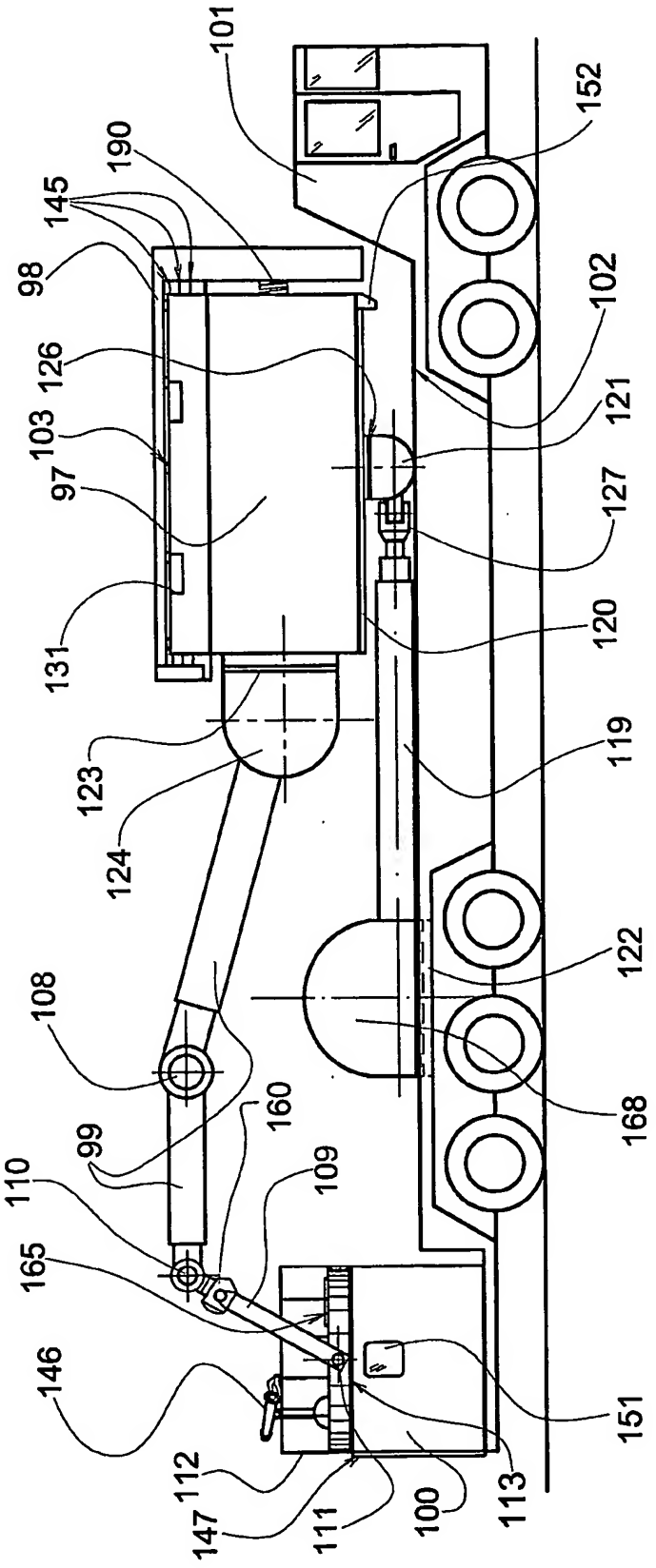
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Fig.18

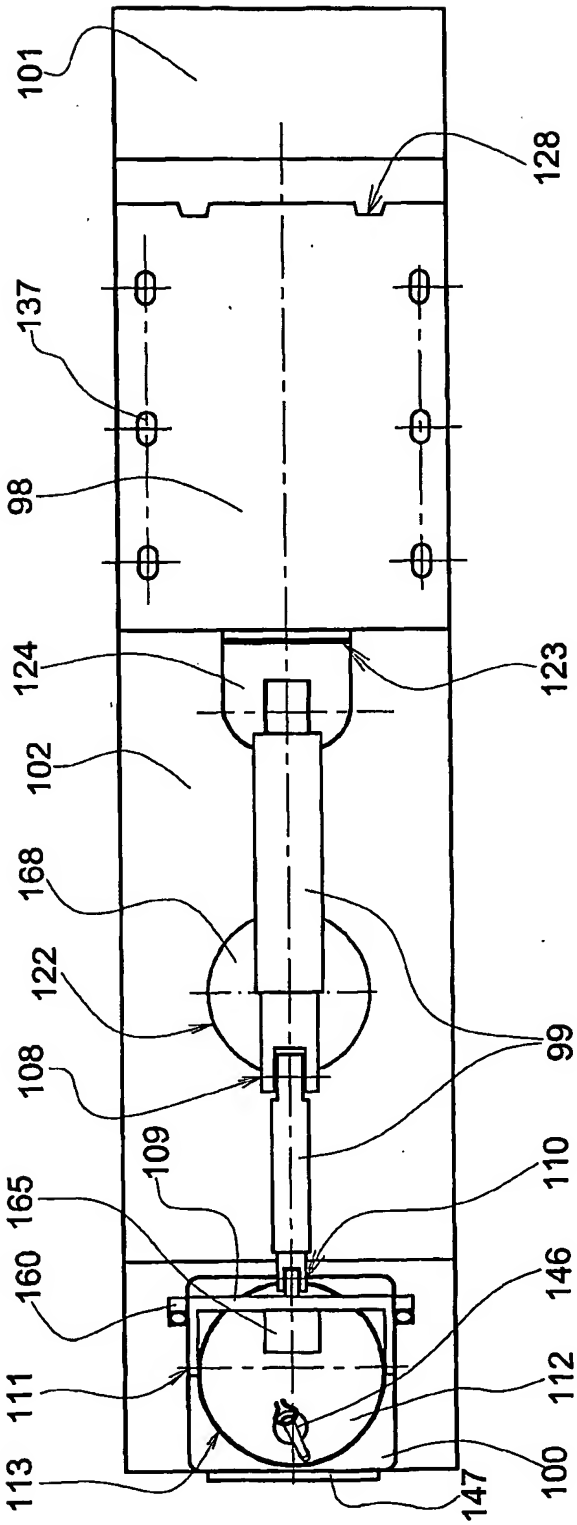
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Fig.19

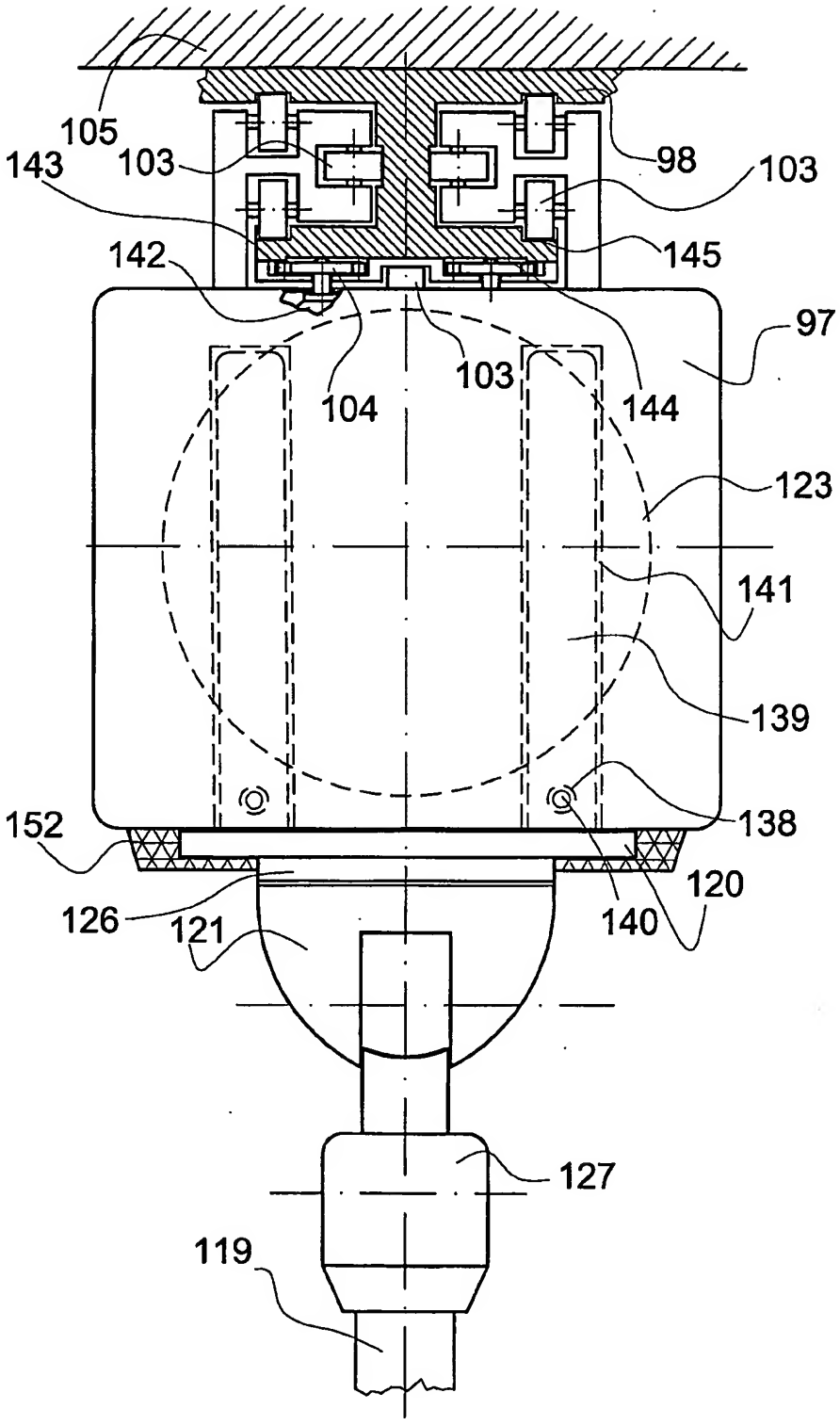
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Fig.20

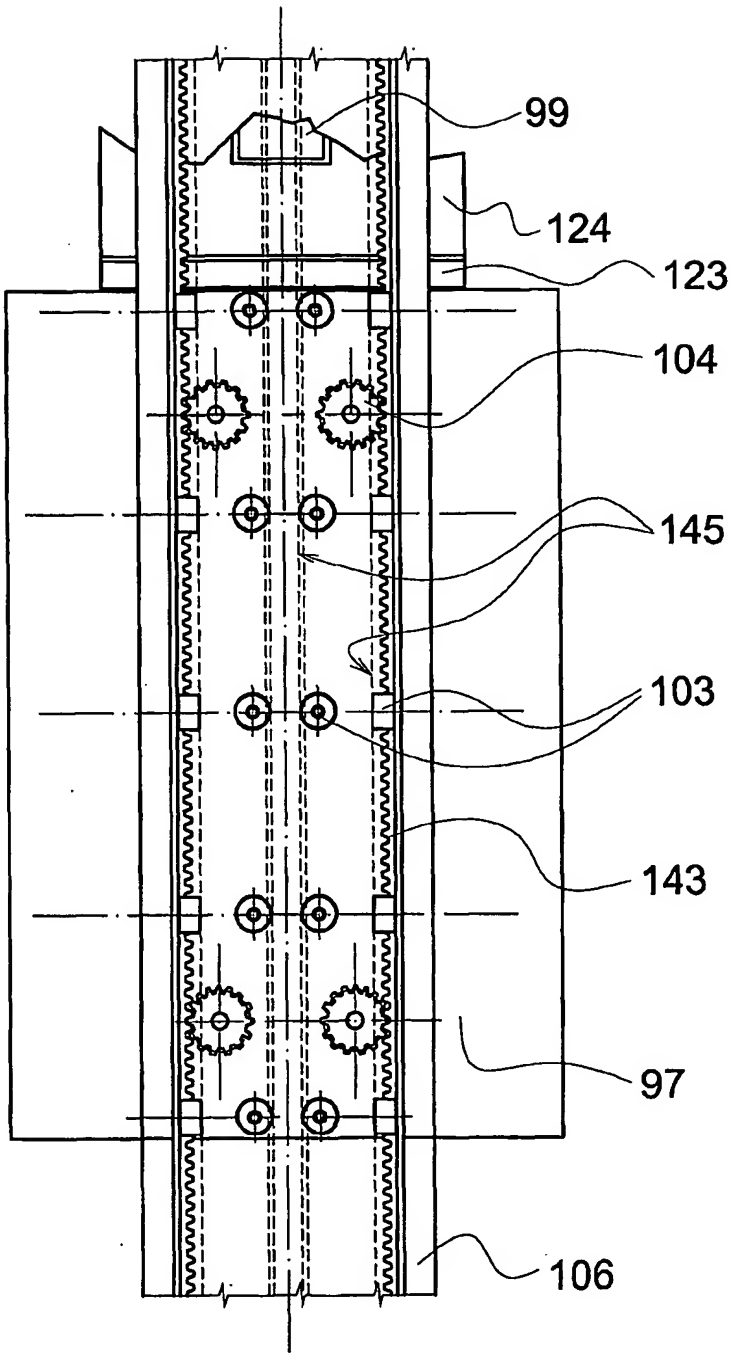

Fig.21

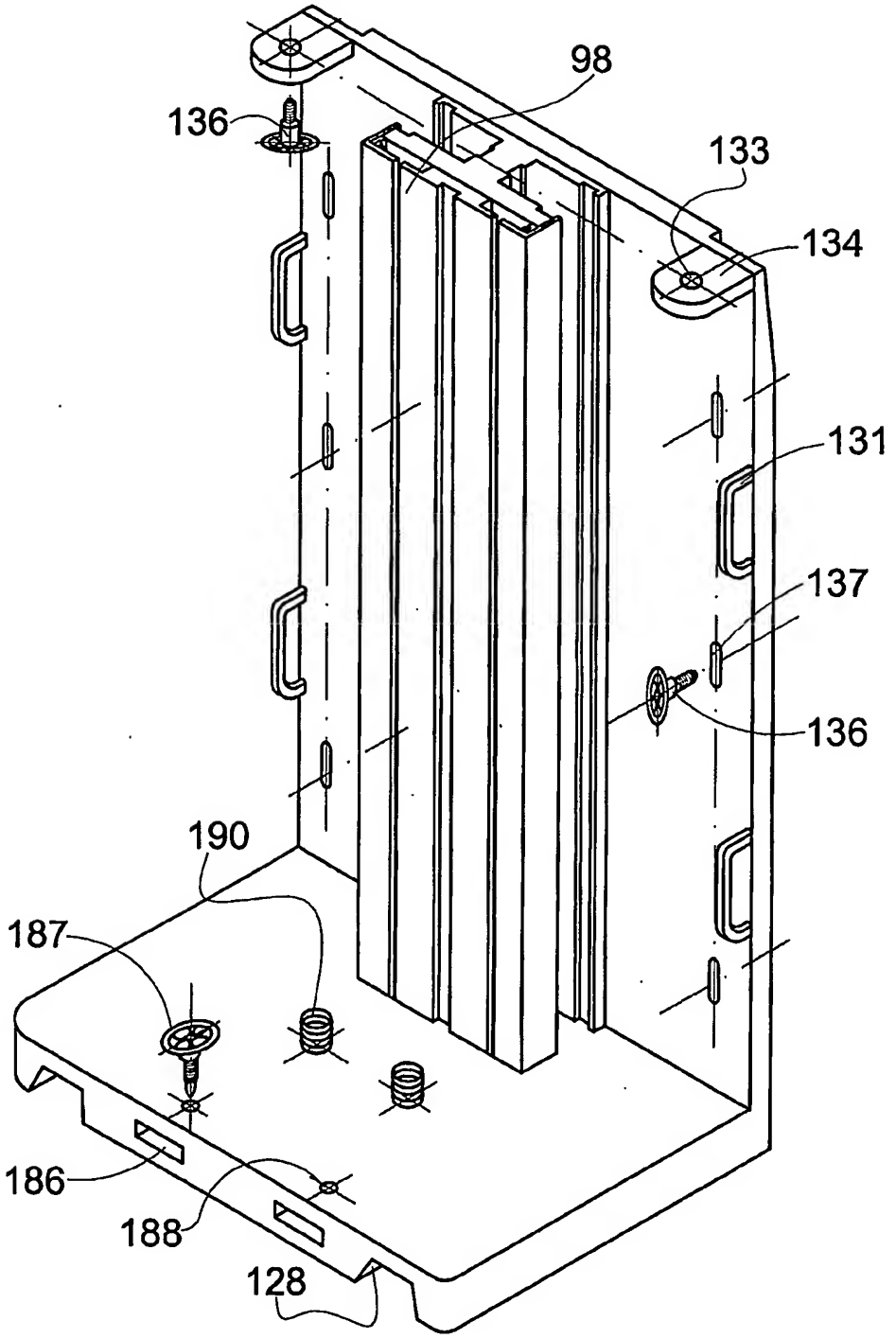

Fig.22

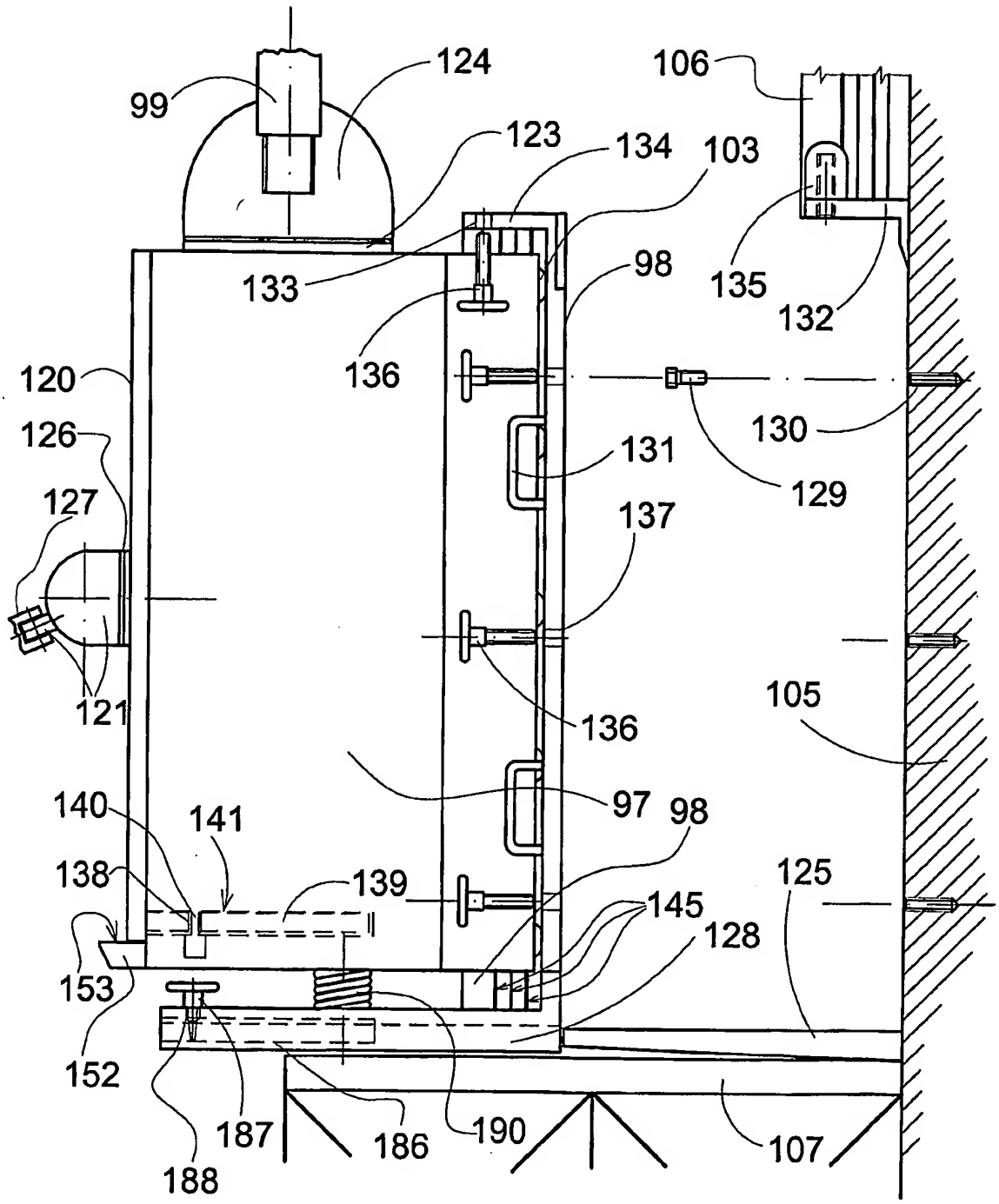
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Fig.23

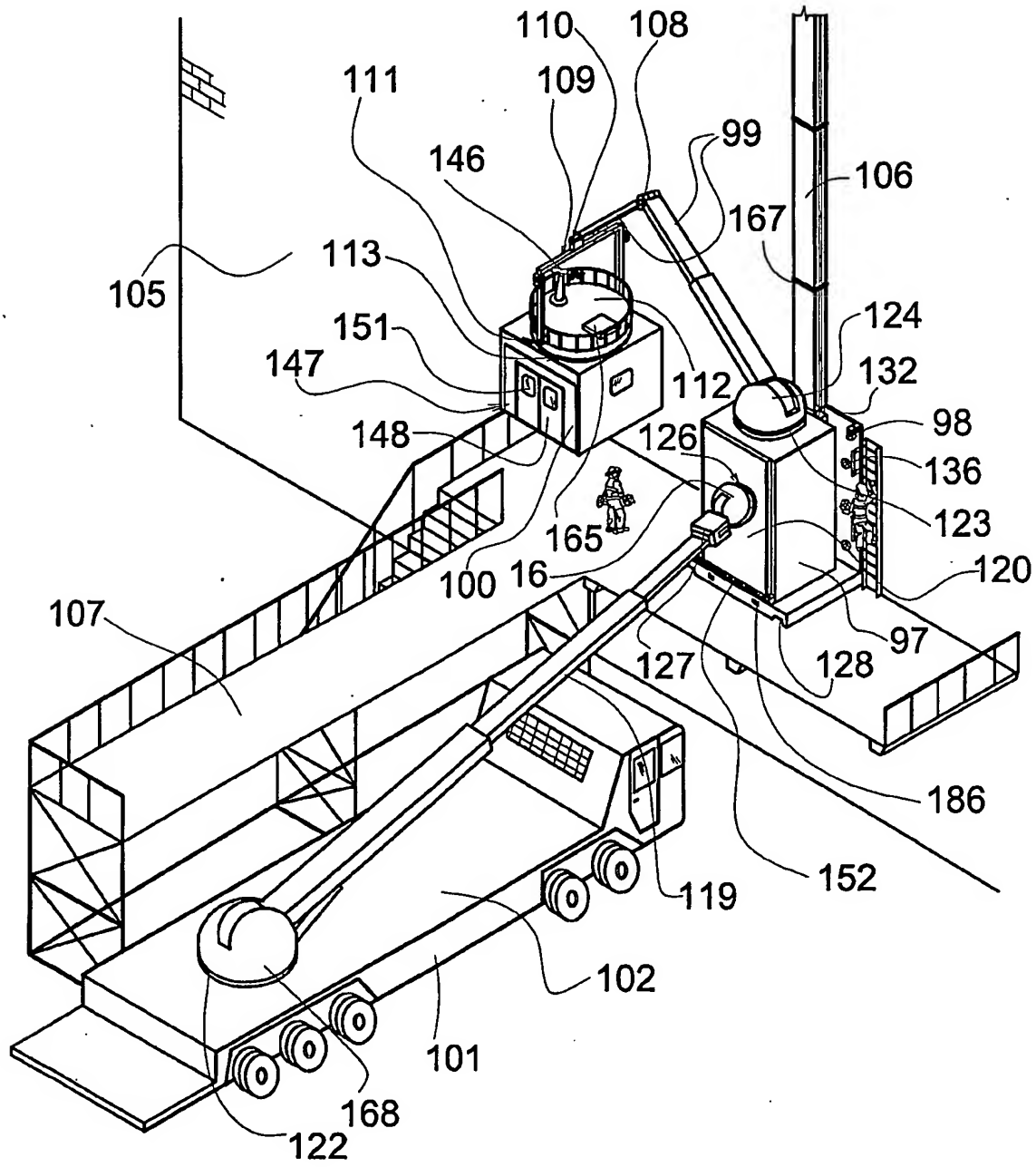
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Fig.24

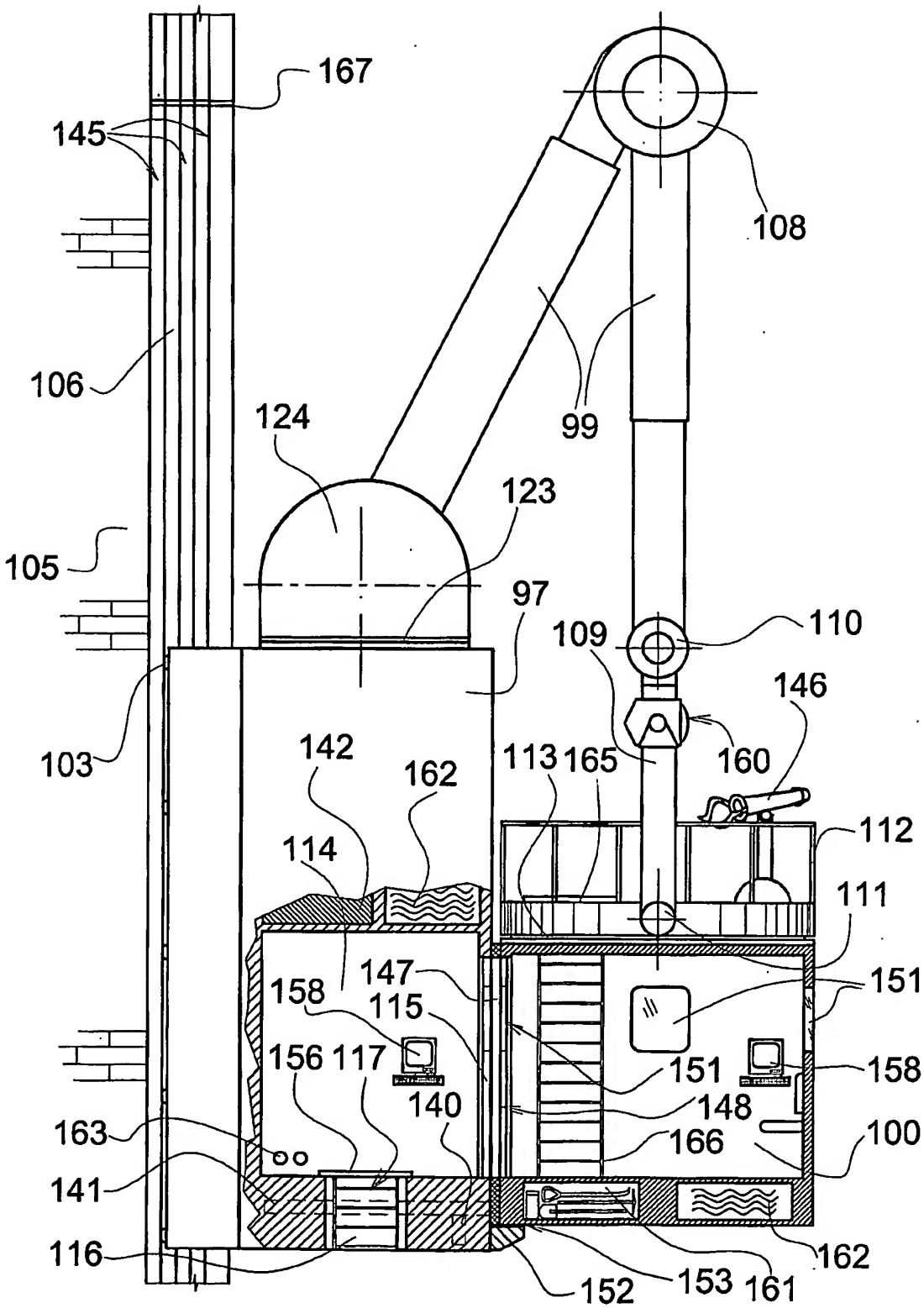
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Fig.25

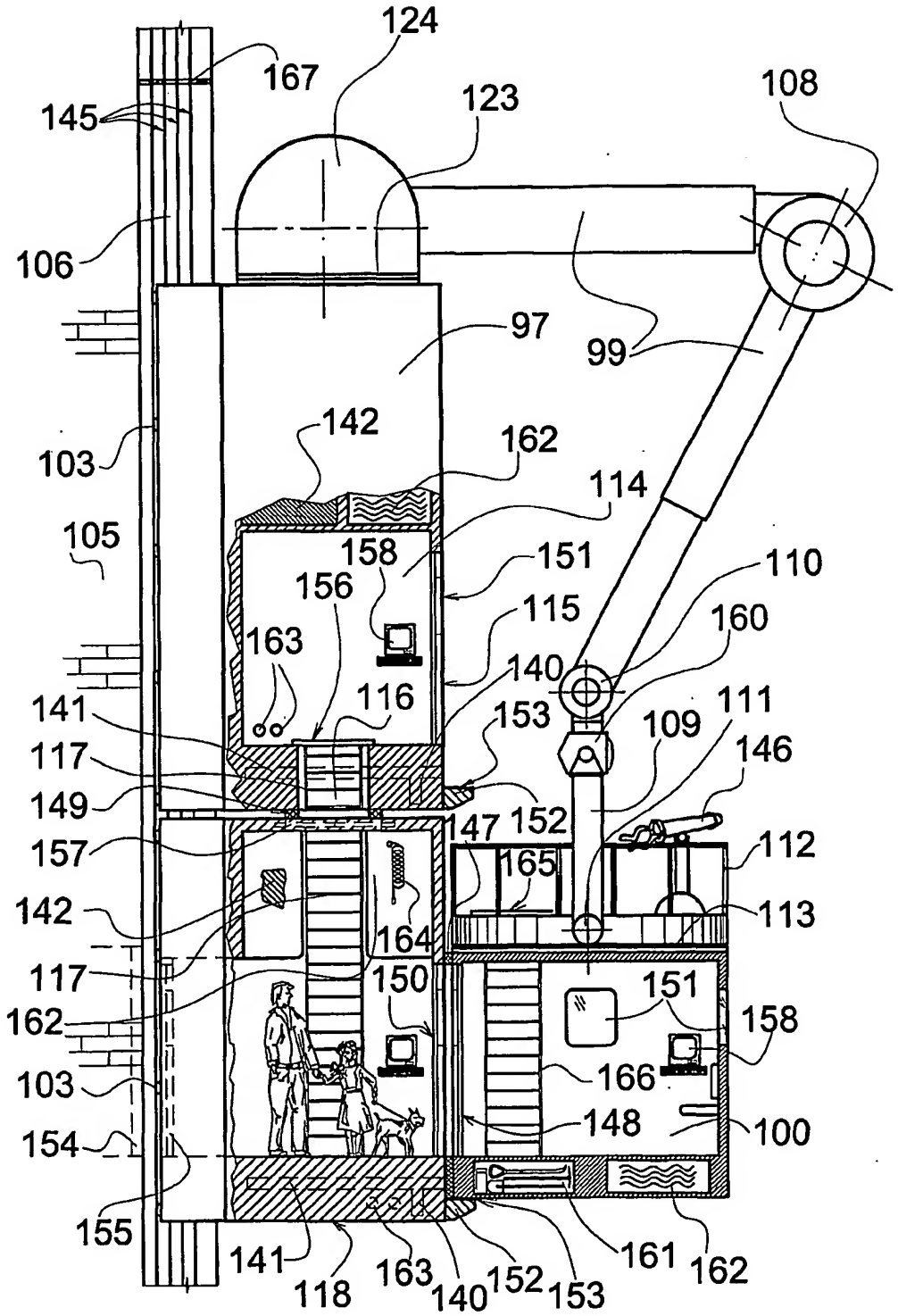
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Fig.26

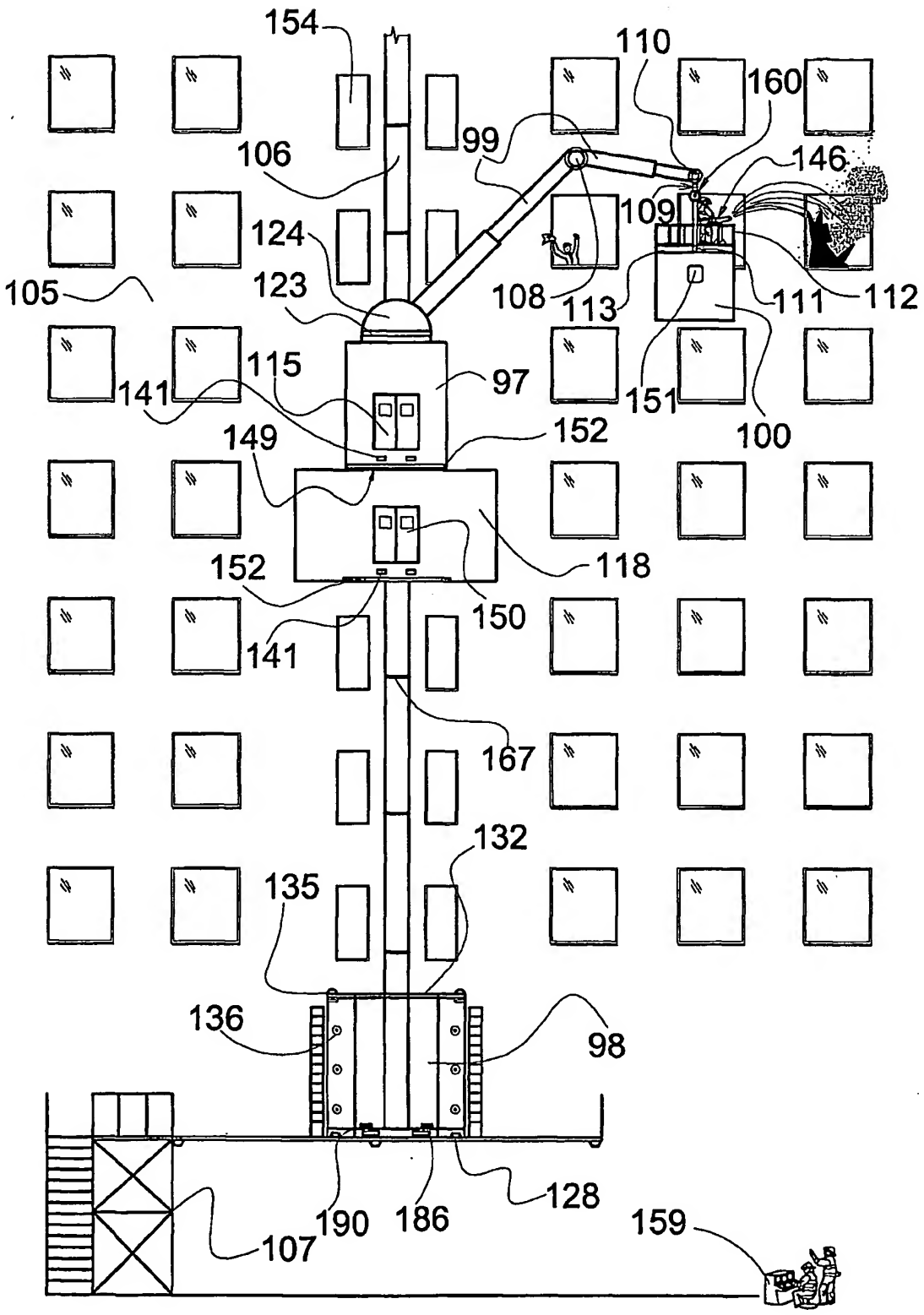
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Fig.27

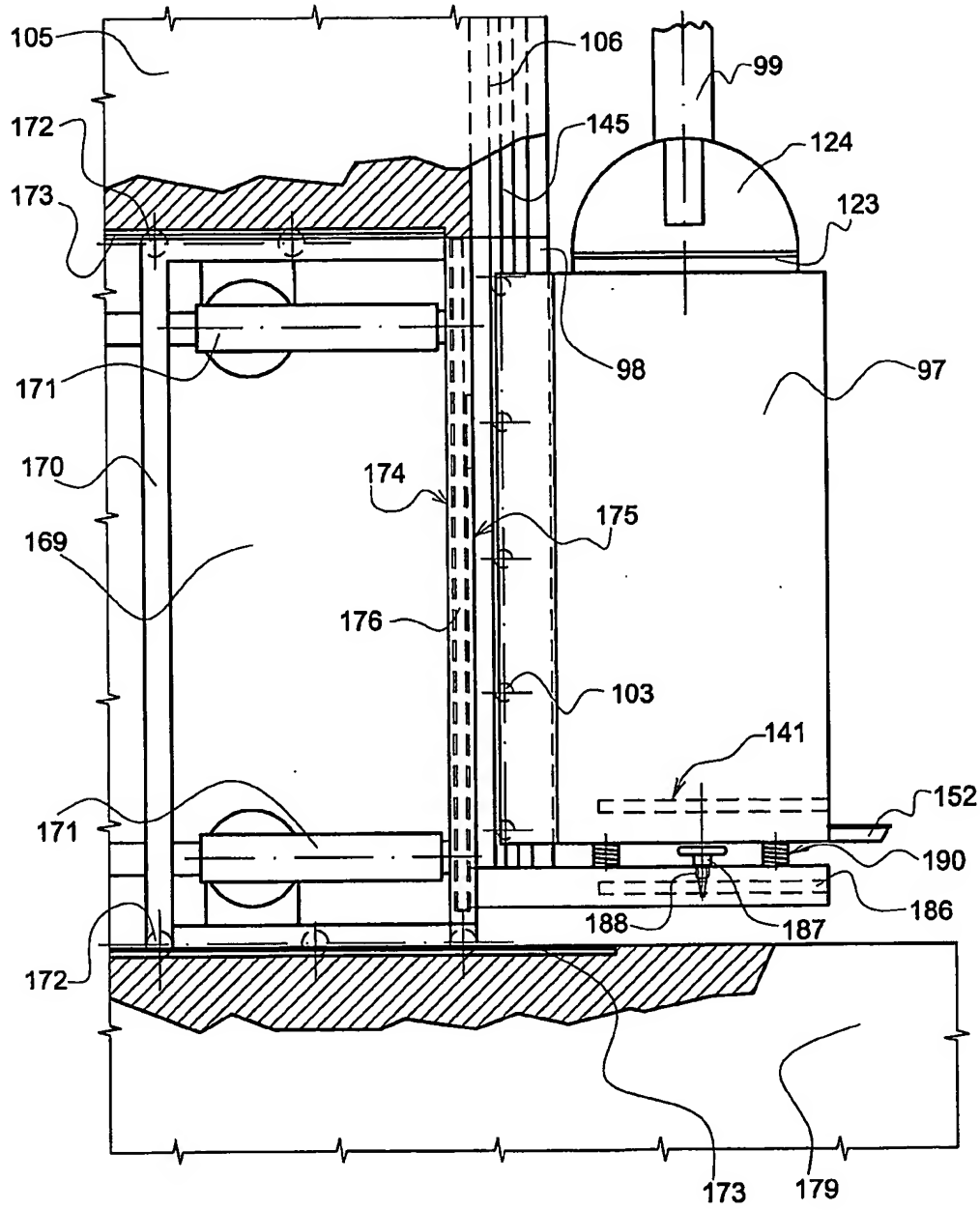
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Fig.28

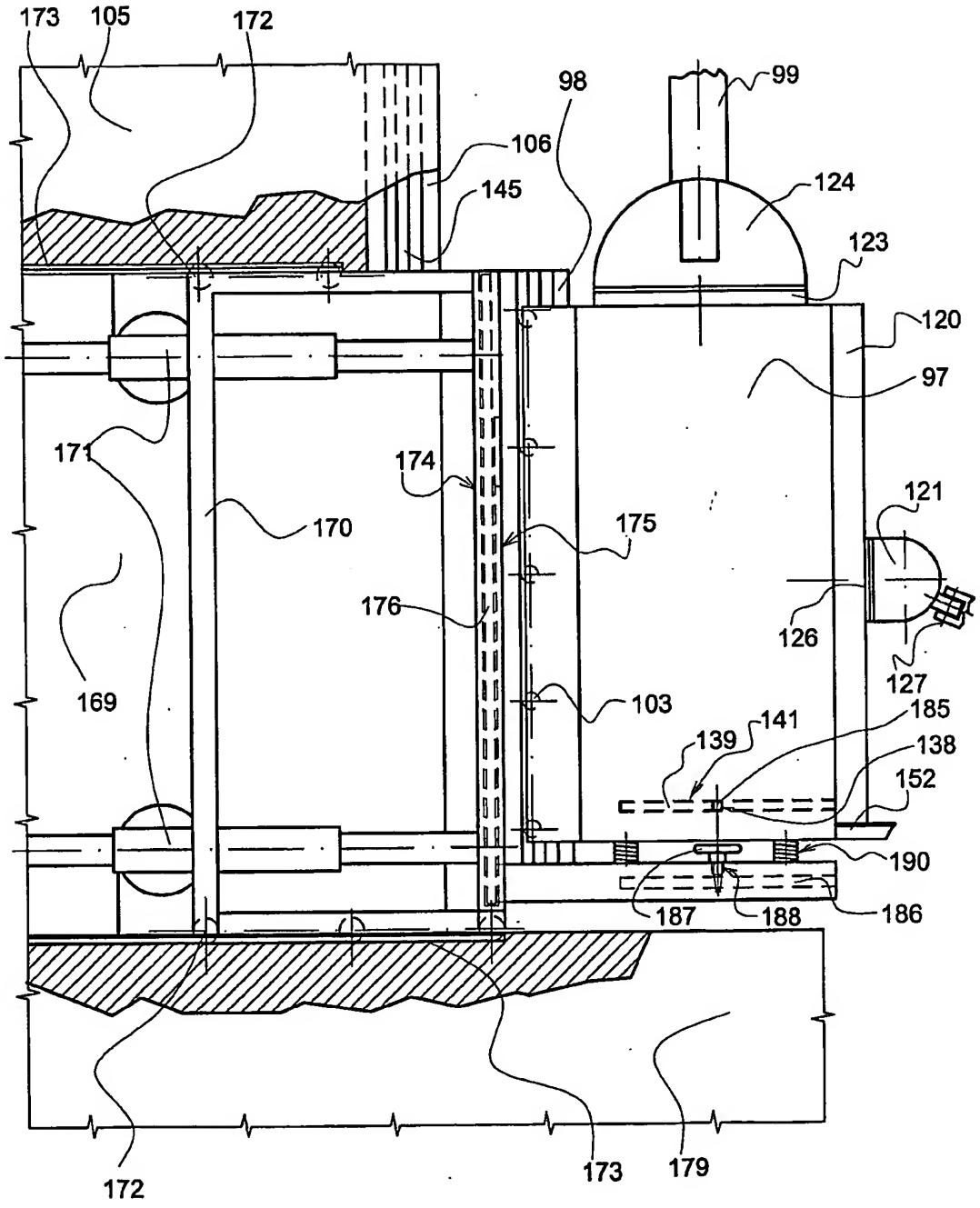
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Fig.29

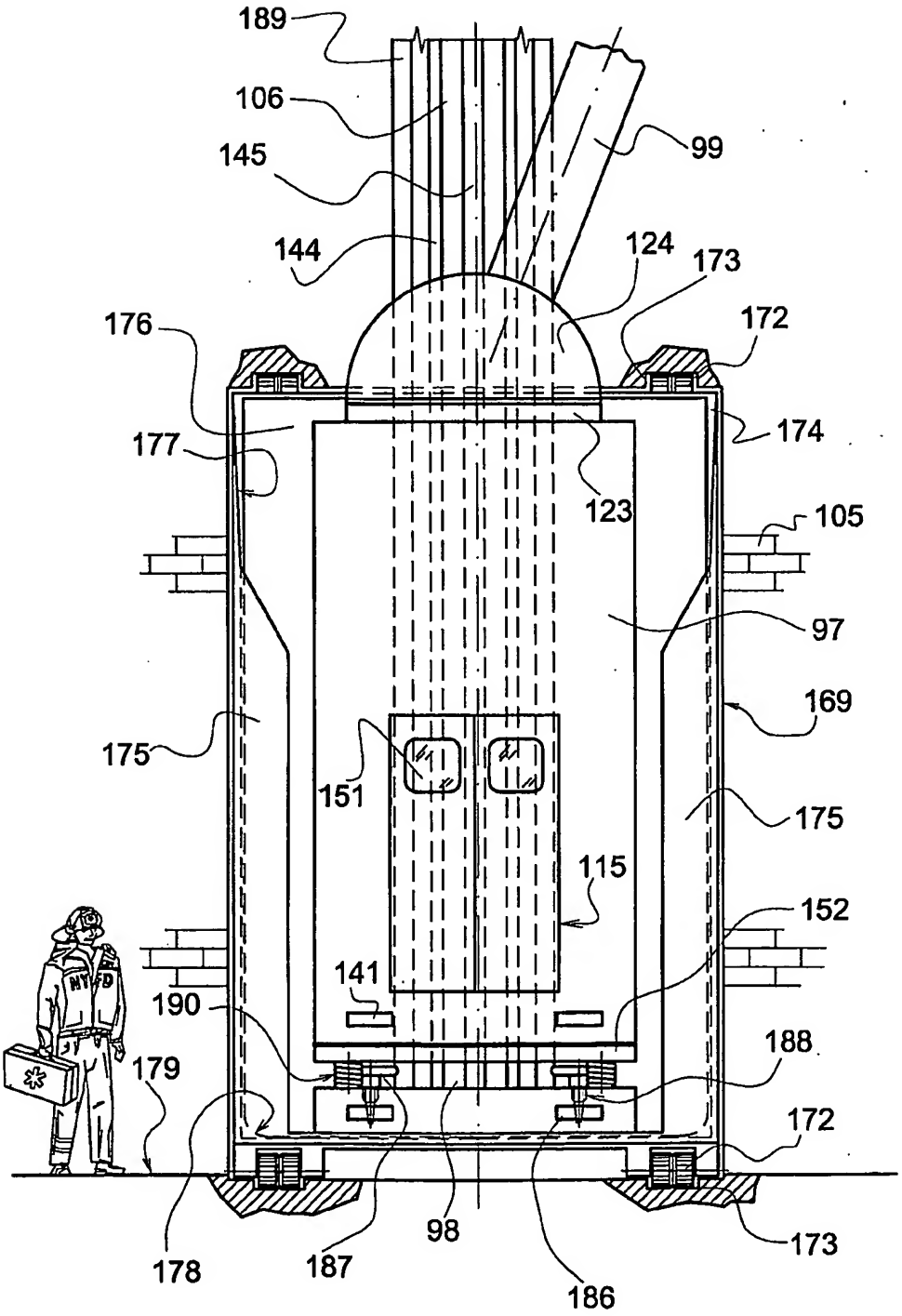
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Fig.30

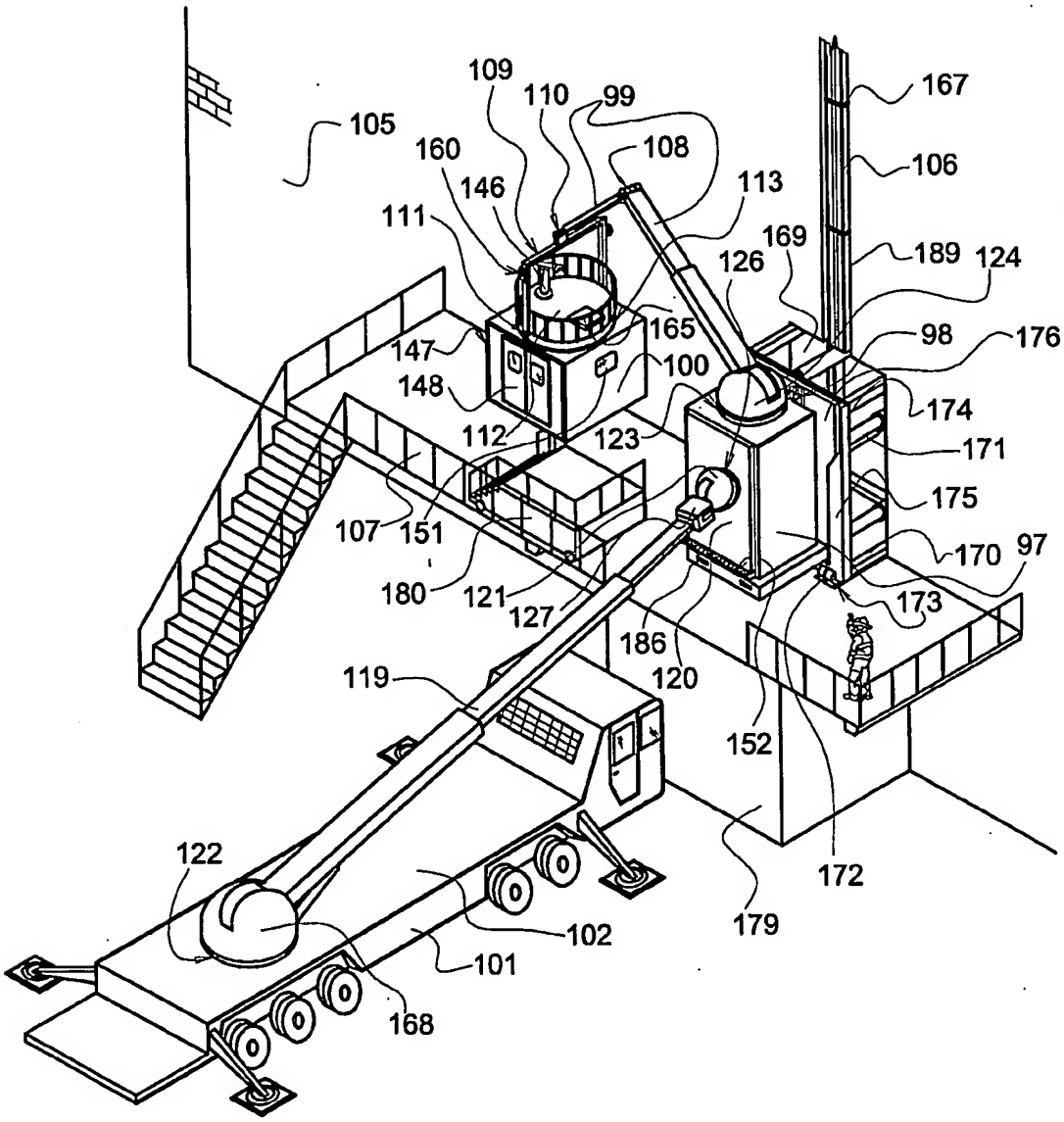
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Fig.31

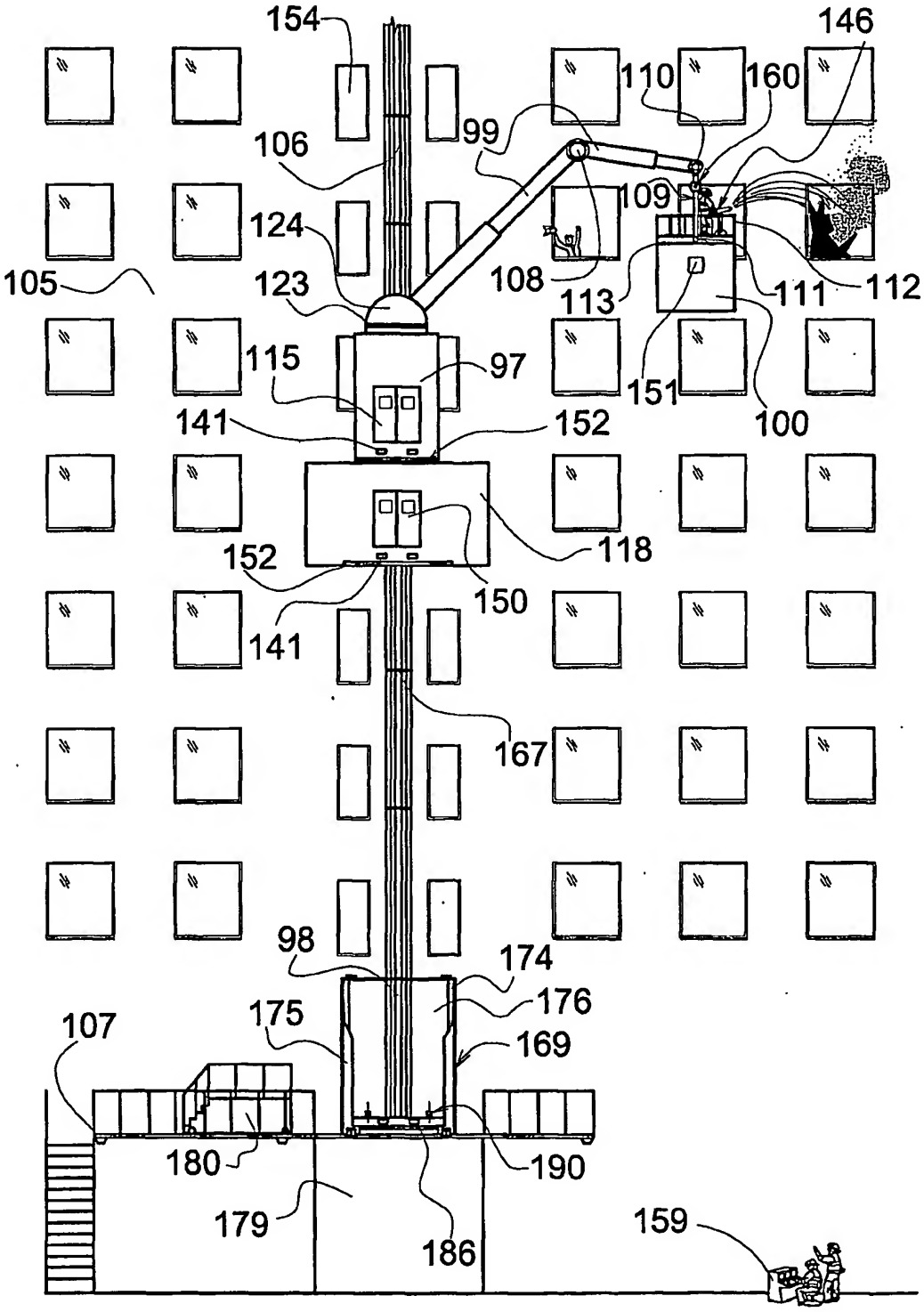
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Fig.32

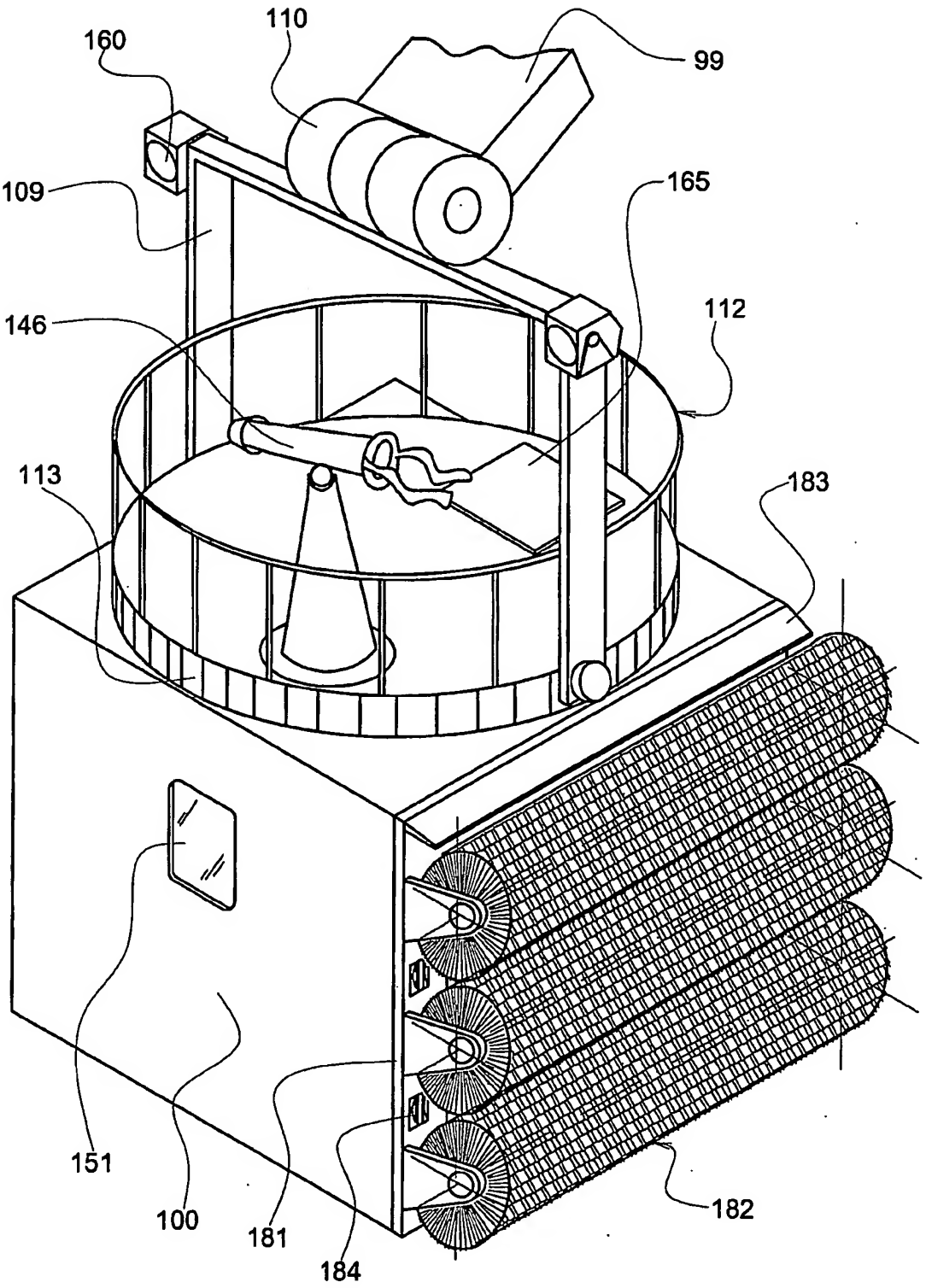

Fig.33

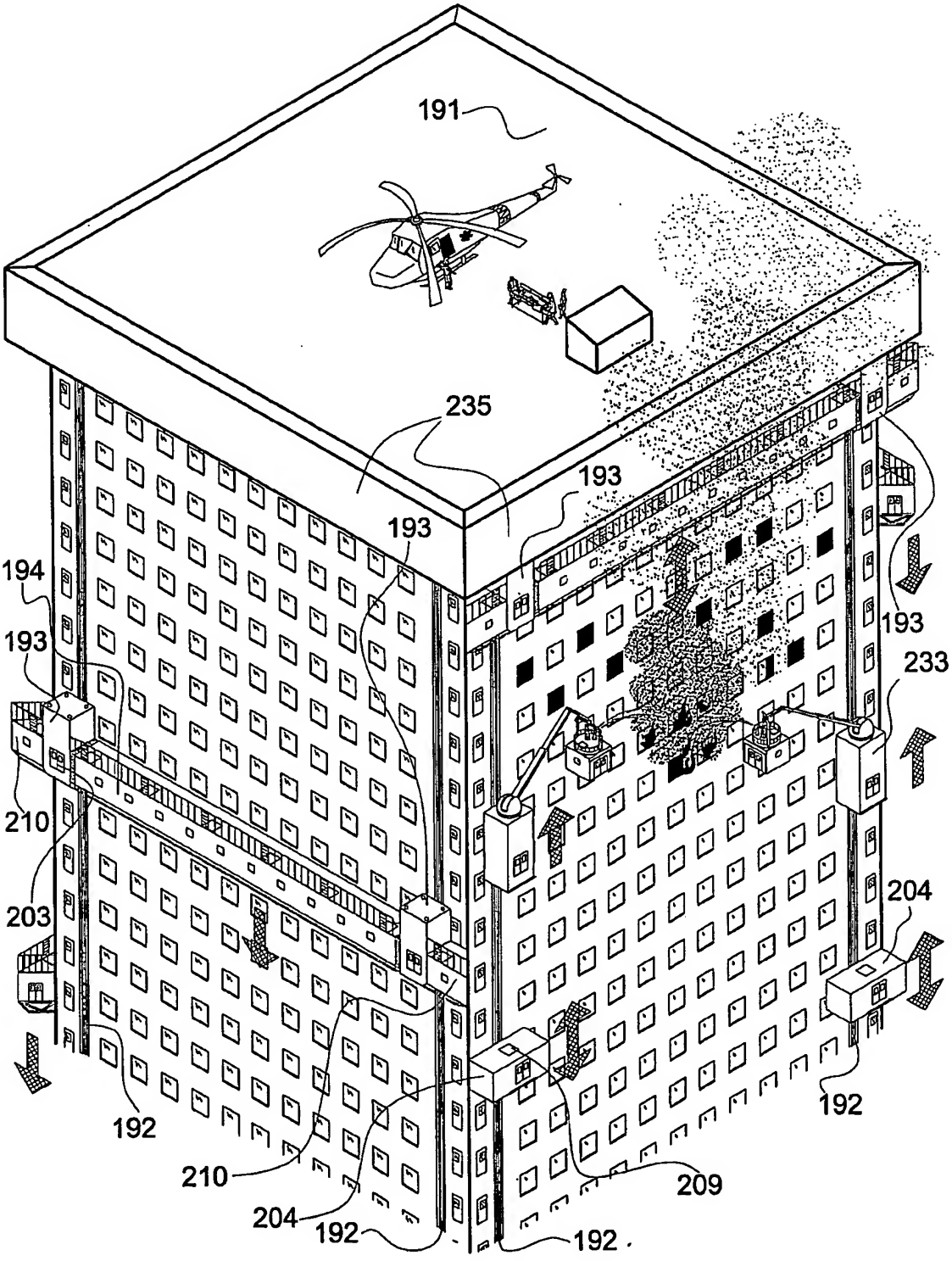
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Fig.34

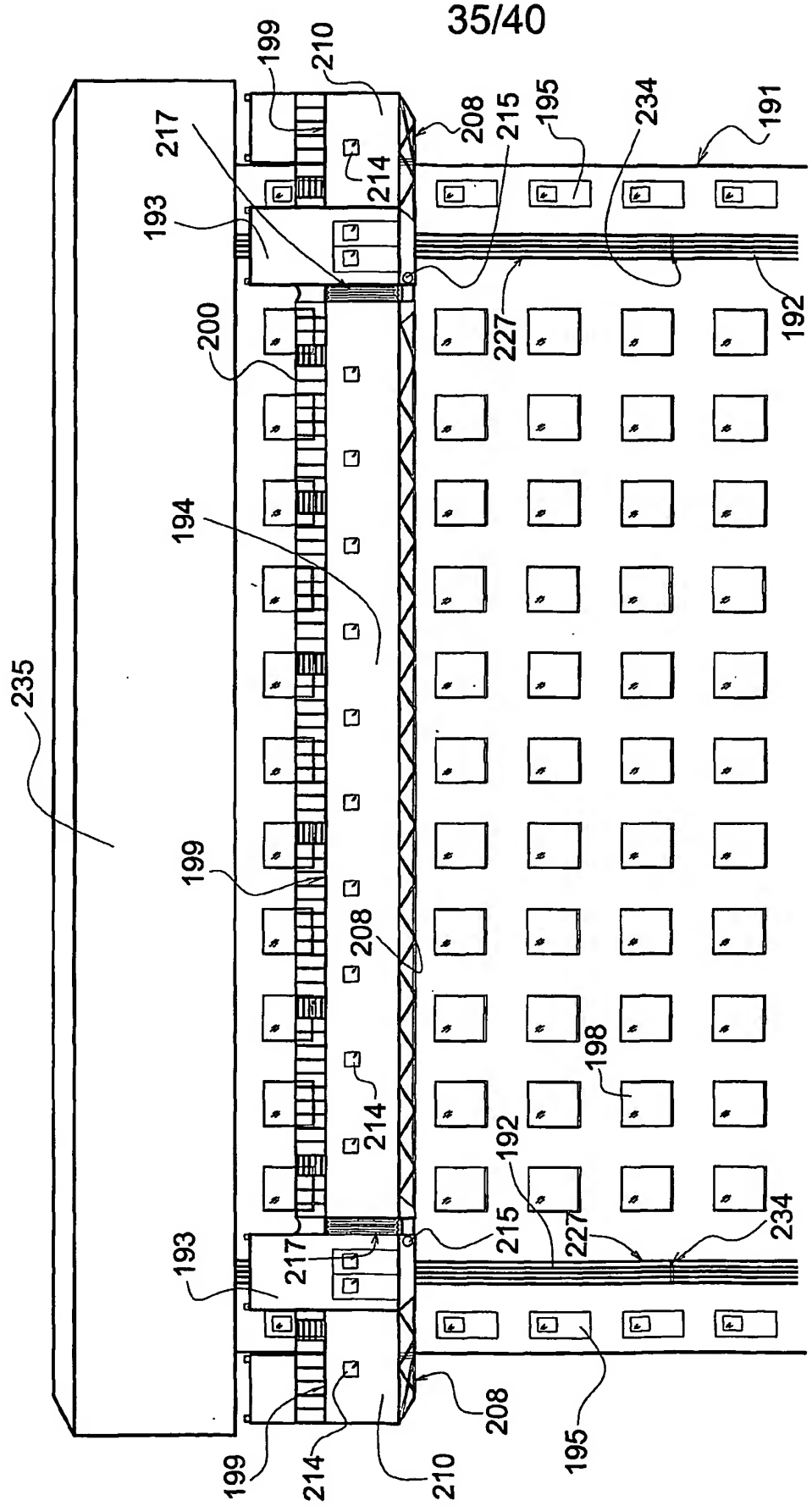
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Fig.35

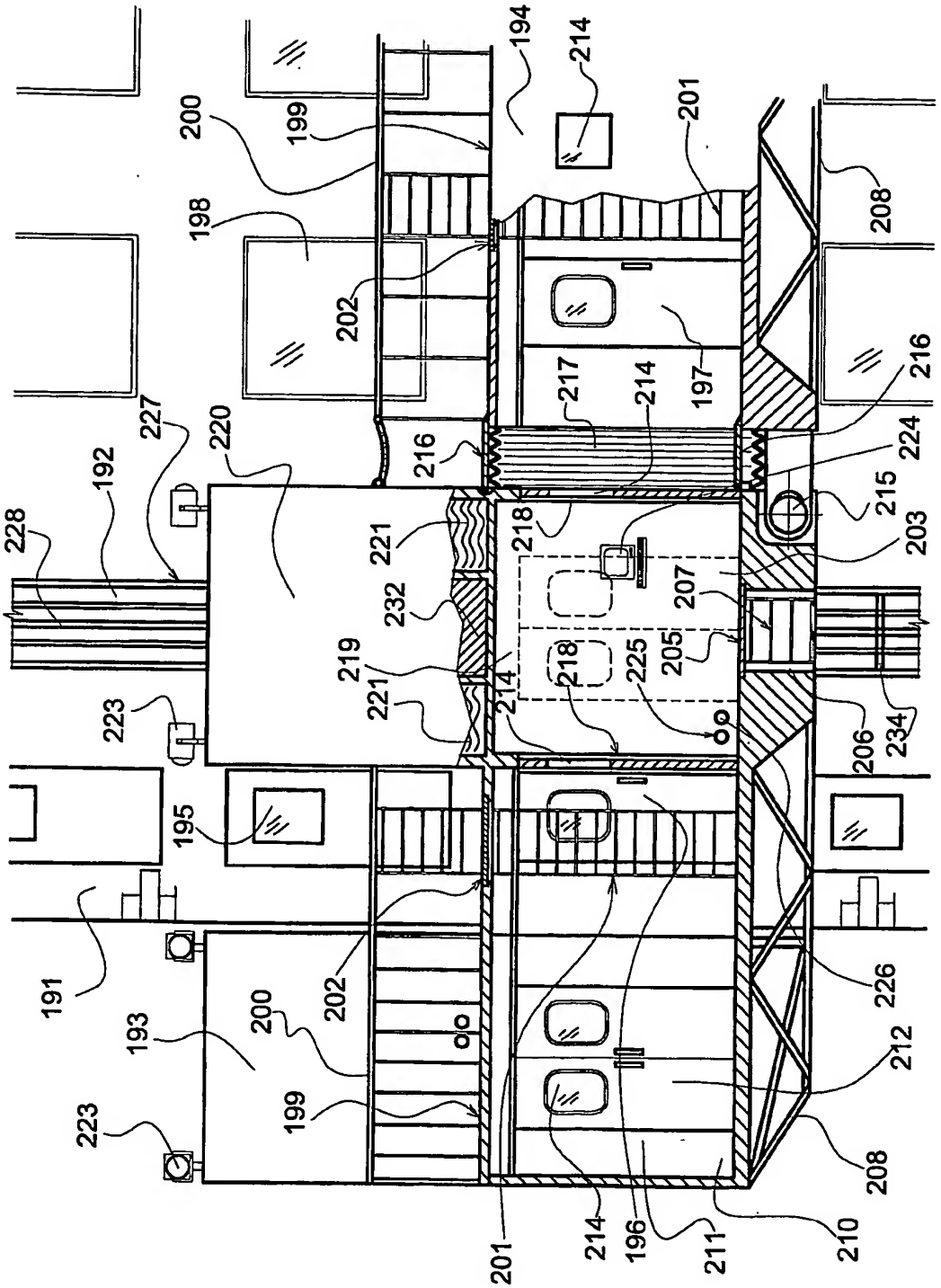
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Fig.36

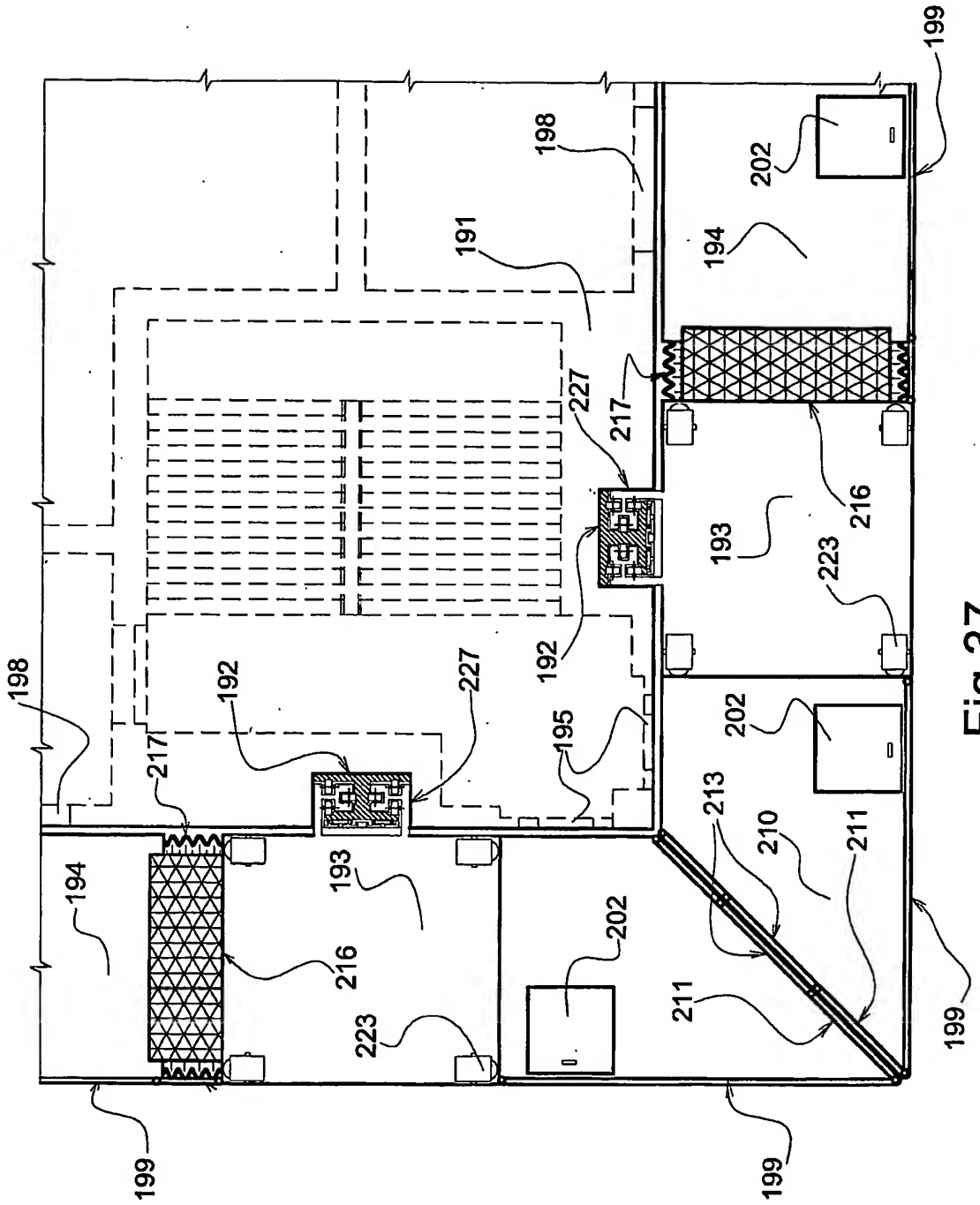
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Fig.37

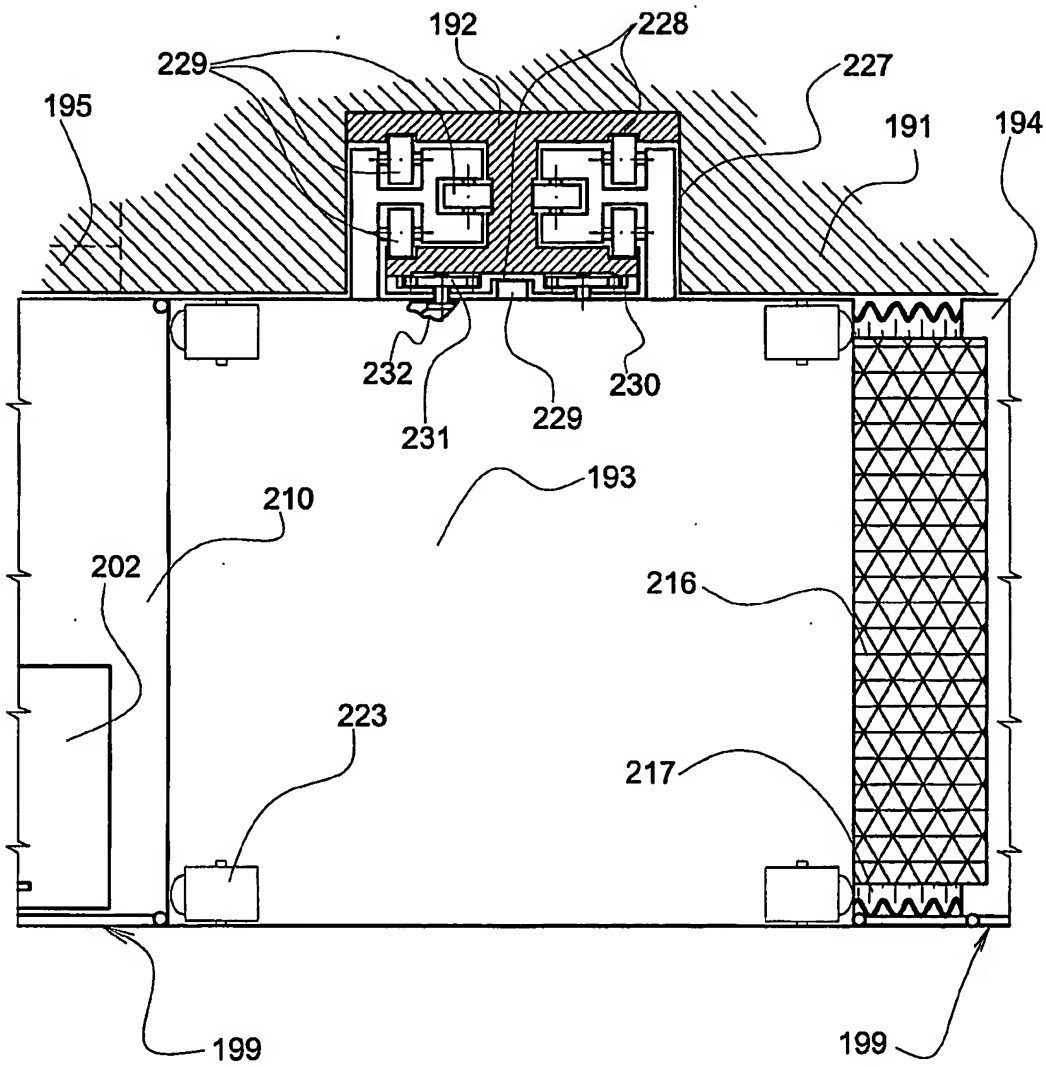
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Fig.38

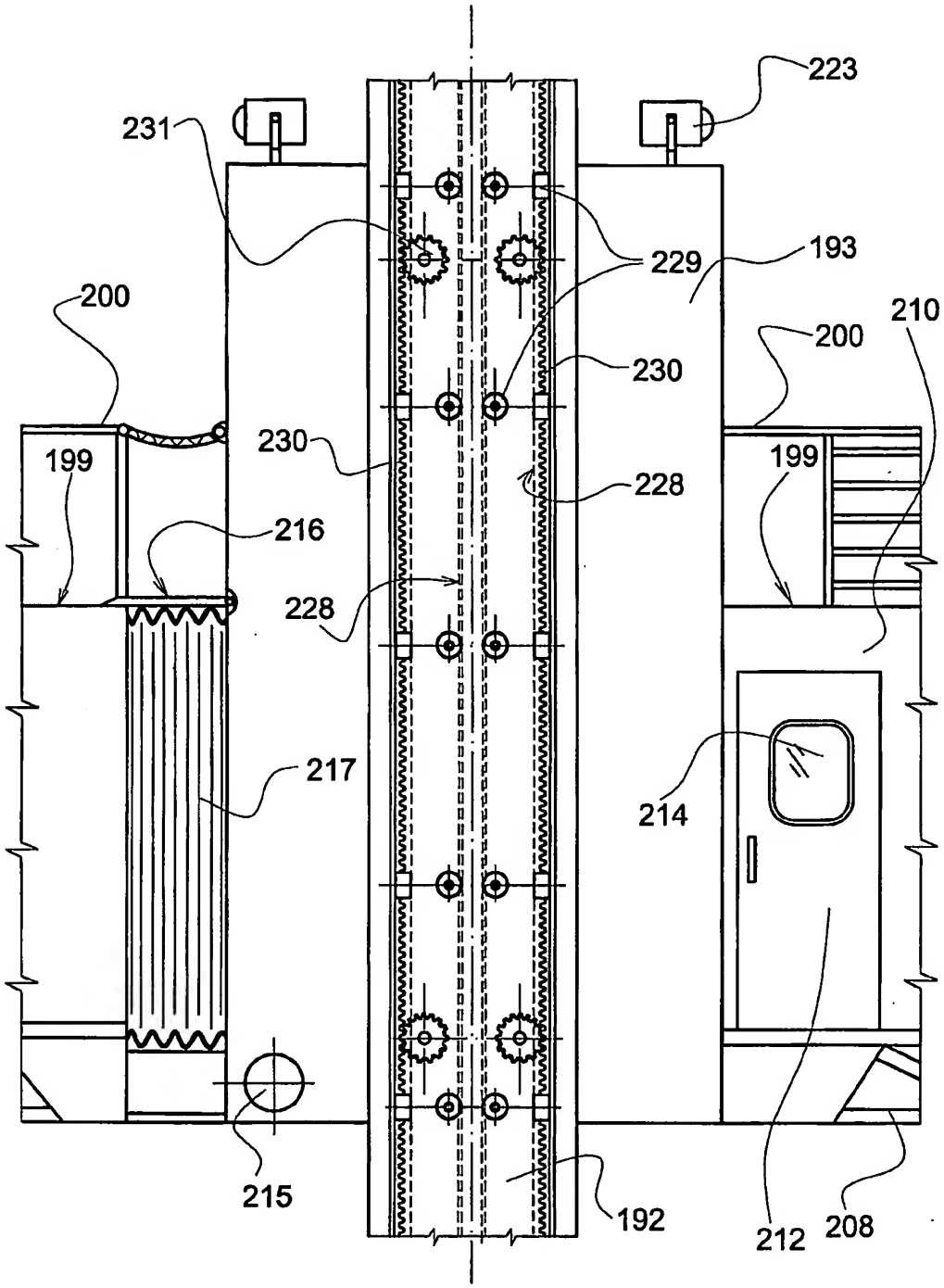
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Fig.39

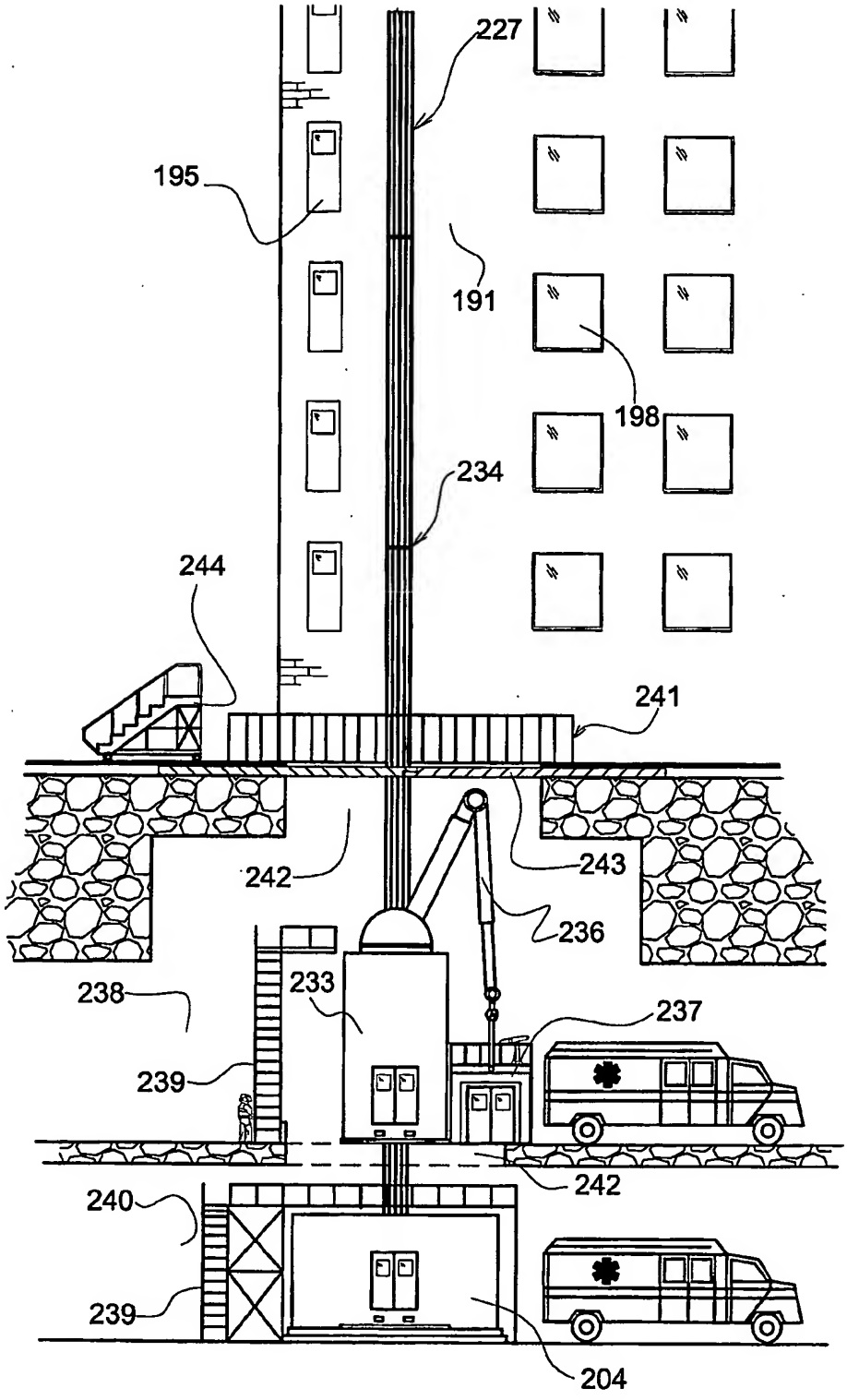
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Fig.40